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/THE ROLE OF THE HONDURAN INSTITUTE OF AGRICULTURAL
MARKETING (IHMA)/

by

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INTRODUCTION

A. General Overview of Honduras

Honduras, a small independent republic, lies in Central America between the Pacific Ocean and Caribbean Sea. Honduras is bounded by Nicaragua on the South, El Salvador on the Southwest, and Guatemala on the Northwest. It occupies an area of 112,000 square kilometers (43,277 square miles), slightly larger than Tennessee.

The population is 4.3 million and growing at 3.5 percent annually. Honduras has one of the highest growth rates in the world. The age distribution is, 0-14: 47.7 %; 15-29: 26.2 %; 30-49: 16.8 % and greater than 49: 9.3 % (13). The population density is 85.26 per square mile. The migration to cities is rapid, but still more than 68 percent of the population lives in the rural areas.

Literacy (1982) is considered to be 47 percent and is estimated to be higher in the urban areas. The average educational attainment is under two years of formal schooling. Of 1,000 first grade entrants, 100 will complete the 6th grade, 35 will complete high school, and only one will obtain a university degree (15).

Over one-half of all Hondurans have no access to health services beyond folk medicine. Mortality statistics indicate that the lack of environmental sanitation is the single most serious health problem. Malnutrition is also a serious problem, with protein and vitamin A deficiencies prevalent. Over 80 percent of rural children and 60 percent of urban children under age six are malnourished (15).

According to a World Bank study, Honduras has the highest household income inequality in the world, with the top 20 percent of the households receiving 68 percent of the income, and the bottom 40 percent of households only 7 percent

The Honduran economy shows signs of difficulty. As result of erosion in confidence associated with the political instability across the region, private investment has declined. Export earnings have contracted due to deterioration in the terms of trade and a weakening in demand for primary product exports. Consequently, the rate of real economic growth has declined markedly from an average of 7.5 percent annually during 1975-1979, to 2.5 percent in 1980 and less than 0.5 percent in 1981. Accounting for the inflow of refugees and population growth, real per capita Gross Domestic Product has declined for the last two years, with evident consequences on employment and the quality of life.

At the same time, the balance of payments has come under pressure because of lower export earnings, high interest rates abroad, and the curtailment of foreign lines of credit. Even though imports were down in 1981, they still exceeded exports by $300 million. The result was that net international reserves fell from $116 million in 1979 to $8 million in 1981 (15).

The agricultural field is the most important sector in the Honduran economy. The economic growth of Honduras can be attributed primarily to increases in production of agricultural export crops such as coffee, bananas, sugar, and cotton. The total land area of Honduras is 11.2 million hectares with only 25 percent of the area potentially appropriate for agriculture use. Frequent rainfall storms cause heavy flood damages to agricultural fields. The government as a result of the lack of funds, has done little to reduce these kind of risks.

Around 50 percent of the land for agricultural use is dedicated to the growth of basic grains, which include corn, beans, rice, and sorghum. Corn is the predominant crop in Honduras and it is grown by a large majority of the peasants in the country. This grain alone constitutes the single most important component of

the diet for a large proportion of the population. Honduras may be considered a self-sufficient food production country. Wheat is the only major imported grain consumed in Honduras, even though this grain is produced in small quantities.

It is important to point out that in the past Honduras exported basic grains to other Central American countries. However, production now is just sufficient to meet consumption needs in most years. In the period 1960-1984, basic grains production showed the following behavior: corn exhibited an average growth rate of 6.79 percent, growth due more to yield increases than to area expansion; rice exhibited an average growth of 2.1 percent, with the growth due to increased yields starting in the first years of the 1970's, beans and sorghum both experienced negative growth rates, because of the reduction of production areas. Historical data for production, area, and yields for corn, beans, rice, and sorghum are presented in Appendix A.

A very important characteristic during this period is the substitution of land among crops. For instance, in the period of 1970 through 1980 a sharp increase in area dedicated to rice can be seen. On the other hand, a reduction in area for the rest of the grains was observed.

It appears that basic grains production has not responded to the efforts of agricultural technicians as expected. Among others, reasons cited for this lack of response include problems in the marketing structure, and the fact that support prices or/and credit are not reaching the farmers effectively.

B. Description of the Honduran Institute of Agricultural Marketing

Starting in 1956, the National Development Bank (BANAFOM) administered the price stabilization program for basic grains; in 1957, this program was re-structured and a division for the Marketing and Conservation of Cereals was

created. However, in light of the fact that the marketing activities for basic grains distracted from the principal function of the National Development Bank, a new form of organization was believed necessary for implementing direct intevention activities for the basic grains.

The government of Honduras, through law-decree No. 592 on May 6, 1978, created the Honduran Institute of Agricultural Marketing, IHMA, as an autonomous institution with its own patrimony and juridical personality. IHMA started its organization on June 1, 1978 and its operation began on October 1, 1978. The Institute has its main office in Tegucigalpa, the capital city; however, it operates in the whole country.

According to IHMA's charter, the institution's purposes are to promote improvement of the basic grains marketing system. Its objectives are (1) to assure the stabilization of prices in the national market through direct intervention in buying and selling of these products, both in Honduras and overseas and (2) to guarantee an orderly and stable market for producers and an adequate supply to consumers.

Given the country needs and the availability of resources, the Institute has the authority to incorporate other agricultural products under its administrative programs. Consequently, IHMA has responsibility for formulating and carrying out marketing policy·for basic grains and other commodities.

In order to carry out its primary objectives, the Institute is charged with such functions as stabilizing basic grain prices, establishing support prices, buying and selling basic grains and providing storage and processing services. (See Appendix B).

The Institute's top administrative unit is the Board of Directors. The Board is made up of members of the government cabinet, with representatives from the

private sector and the association of peasants. The presidency of the Board of Directors is carried out by the Secretary of the Secretariat of Natural Resources. The Board of Directors has sovereign authority and works under the norms established by law, which created IHMA. See Appendix B for membership and functions of the Board of Directors.

CHAPTER II

DEFINITION OF THE RESEARCH PROBLEM AND OBJECTIVES

A. Problem

By law the Honduran Institute of Agricultural Marketing (IHMA) is the Institution charged with providing production incentives to grain producers, and at the same time assuring an adequate supply of basic foods at reasonable prices for the consumers.

When IHMA was created, it was expected to earn sufficient margins from the regular market operations to meet its expenses. Due to the social function that IHMA has to achieve in the Honduran society, it has reported substantial capital losses throughout its operational period 1978-1984. These losses had reached the amount of 15.9 million Lempiras by mid-1984 (1 Lempira = 2 Dollars) see Table 2, Appendix C.

IHMA's capital reduction has arisen not only because of the public role that this institution has to accomplish, but also as result of (1) sharp increases in support prices offered to producers, (2) high operational and administrative costs, and (3) fixed sales prices to consumers. Consequently, IHMA has incurred a margin of profit which has not been high enough to cover operational and administrative expenses. Other problems also persist.

Ever since IHMA started its operations, goals established for its procurement programs have rarely been accomplished. Only in the case of beans have purchases exceeded 20 percent of the net marketable production, a percentage considered adequate to influence positively the market behavior. Factors such as competition, lack of funds, fixed price policy, failure to recognize the early market signals to buy at the right time, have contributed to IHMA's inability to achieve procurement goals.

Since its creation, IHMA has worked without standard sales procedures and guidelines. Because of this, the Institute has not developed an adequate marketing system for grains either in Honduras or in the Central American region. Furthermore, there are no guidelines to help determine the amount of grains that IHMA will sell to the agro-industry, for domestic consumption, for export or as direct sales through BANASUPRO (Governmental Institution in charge of guarantee low retail prices to the people with low household income).

Due to the public role that IHMA has to accomplish and the high prices that it pays to obtain the grain, its fixed sales prices often have been high and not very competitive. Consequently, the sales program has also become difficult for IHMA to administrer. Only in times of production shortfall has IHMA been able to develop a partial sales program without major problems.

Support prices have become one of the main problems for the Institution. The IHMA management takes into consideration economic variables, such as reasonable rentability for producers and marketing costs to IHMA in recommending price support levels. The problem arises because IHMA's Board of Directors has to approve the support prices. The Directors have a tendency to go for high support prices under their criterion that the higher the support prices, the more grain production may be expected. Such decisions usually are made by the Board of Directors without taking seriously into account the economic situation that IHMA has to face.

Salinas, Jaime J. (12) in his study, Corn Acreage Response to Market and Government Support Prices in Honduras, found no statistically significant difference between the effects of IHMA and those of the former institution on producers' supply response. Even though IHMA has been paying higher support prices than the National Development Bank did in the past, farmer responses were

not statistically different. Using Nerlove supply response analysis, Salinas found that the support price of corn set by IHMA during the last year had no significant effect on corn acreage supply. Instead, producers were found to be responsive to market prices rather than to the government support prices.

Because IHMA has not had a system of cost accounting, the IHMA administration has been working without knowing the Institution's operational expenses. Thus, any decision that the administration could have taken or did take in the past, they did not know in advance the economic consequences this would have for the institution. As IHMA attempts to carry out its goals for each new agricultural year, it faces the same problems. There is general disregard of the economic impact that IHMA imposes on the grain marketing system and uncertainty regarding the effects of its program on the Honduran economy.

As result of these problems and others not listed here, the Institute continues to lose capital every year. IHMA's administration up to now has not been able to demostrate any benefits from its operations to the Honduran economy. Yet, the Board of Directors and the Government of Honduras have not made any decision to change the current IHMA strategies.

It is the purpose of this research to point out as clearly as possible the costs, benefits, and economic impacts that IHMA generates to the grain marketing system and the economy of Honduras. The IHMA Simulation Model used in this study is designed to estimate the direct consequences of any strategy and working plan that the IHMA administration and the Government of Honduras are willing to consider.

B. Objectives

Past studies have indicated that up to now IHMA's administration has

functioned without knowing the economic impacts that it exerts on the grain marketing system and the total Honduran economy. The objectives of this study are the following:

1. To analyze IHMA's capital loses.

2. To make a historical review of the purchasing and selling programs carried out by IHMA.

3. To analyze the characteristics of the support prices since IHMA started operations.

4. To estimate the magnitude of IHMA's revenues, expenses, and cash flow, together with simulated economic impacts generated by IHMA by sector for 1984-1985, under (a) IHMA's marketing plan and (b) purchases and sales achieved by IHMA.

5. To estimate the size of IHMA's revenues, expenses and cash flow if reasonable changes were made to the current support prices for 1984-1985.

C. Methodology

The model used to estimate the economic impact generated by IHMA on the grain marketing system and the economy of Honduras is the IHMA Simulation Model for Testing Alternative Intervention Strategies.

The period for study is the agricultural year 1984-1985. Monthly data are used in most of the tables in the model. Data were assembled from a few different sources, such as the U.S. Department of Agriculture, the Honduran Institute of Agricultural Marketing, and the KSU technical mission to Honduras.

In brief, the IHMA Simulation Model is used in this study to estimate under alternative assumptions IHMA's impact on Honduran producers, consumers, and processors, as well as on the institution's cash flow for 1984-1985.

CHAPTER III

THE HONDURAN INSTITUTE OF AGRICULTURAL MARKETING

A. Organization and Facilities

The Honduran Institute of Agricultural Marketing (IHMA) was formed in 1978 as a specialized institution to take control of the public grain marketing activities, which until then had been carried out by the National Development Bank. The Honduran Institute of Agricultural Marketing inherited from BANAFOM control of all installations acquired by purchase or donation from international organizations and the stocks of grain acquired up to that period. All these transfers were done through the normal process of transfer among public agencies by signing the corresponding documents.

On January 31, 1980, the IHMA's Board of Directors decided to form a commission, made up of members of the public sector, to recommended a procedure for the transfer of assets and liabilities from BANAFOM to IHMA (4). It was not until May 1983 that IHMA concluded its negotiations with BANADESA (Institution which is the successor agency to BANAFOM).

When IHMA was created in 1978, the total storage capacity received from BANAFOM was of 66,759 Metric Tons (MT) (see Appendix B). Towards the end of 1982, this storage capacity had been increased to 73,745 MT. This capacity may be increased to 78,745 MT by using emergency outdoor storage located adjacent to the Kennedy terminal. IHMA will expand its storage capacity soon with three projects that are in final stages of development. These projects are: (1) "SILOS RURALES" which will contribute with 18,600 MT, (2) "CENTROS RURALES" with 15,434 MT and finally (3) "PRODERO" with 4,000 MT, for a grand total of 116,800 MT. IHMA's distribution of storage capacity by region can be seen in Appendix B.

B. Financial Condition

IHMA started operations with initial capital of 20 million Lempiras, an amount which was given to IHMA through the issue of bonds. This money was received by IHMA from 10-16-78 to 1-31-80. The Institute has reported some changes in its working capital since that time, either from donations received from international organizations, or from operational results registered in each fiscal year. Donations have been obtained from the U.S.A. government through the Public Law 480 and from the Agency for the International Development, the European Economic Community, the Republic of Argentina, and the Republic of France. See Table 1, Appendix C.

IHMA's financial situation has been getting worse through the years. Since its creation, this Institution has lost money each year, cumulating to approximately 15.9 million Lempiras by mid-1984. (See Table 2, Appendix C). As result, working capital continues to be eroded and has reached the point that funds are no longer adequate to finance grain purchases. (See Table 3, Appendix C). IHMA's operational results from 1978 to 1984 are shown in Table 2. From the commercial point of view, IHMA has obtained considerable income from grain sales, but the Institute's financial situation continues to become worse, because it has to cover excessively high operational and administrative expenses which are not common to private firms.

C. Grain Purchases

In establishing the support price levels, IHMA takes into consideration variables such as production costs, quality standards, and rentability. Because support prices are expected to have an impact on production, the IHMA administration together with the Board of Directors announces these prices before

planting time each year to guide producers' decisions.

Since 1978 IHMA has used two different kinds of quality standards to apply the support prices. In its early years of existence, the Institute published a higher price that they would pay if the grain quality requirements were optimum. This price was reduced if the grain came with high humidity and foreign material. Presently, IHMA publishes a minimum price for grain with higher percentages of humidity, impurity, and damage. The price will be increase if the grain quality is high as well as reduced if it is lower than the standard.

Table 1 portrays the support prices that IHMA has paid to producers since the start of operations.

TABLE 1. Support Prices for Basic Grains, 1978-1985

(Lempiras/Quintal)

YEAR	CORN	BEANS	RICE	SORGHUM
1978-79	13.50	29.00	20.00	11.50
1979-80	14.75	39.00	24.00	13.00
1980-81	15.25	40.25	24.25	14.00
1981-82	17.25	55.00	26.60	16.00
1982-83	17.25	50.00	26.60	16.00
1983-84	17.25	50.00	22.00	16.00
1984-85	17.00	46.00	23.00	15.75

Source: IHMA-Centro de Investigacion y Estadistica.

From this table, it can be seen that support prices for corn, rice and sorghum have undergone moderate changes over the period 1978-1985. The range for these grains goes from -17.3 percent to 20.0 percent. The opposite situation

occurs with beans. A sharp increase in support price of 36.6 percent is observed from 1980-1981 to 1981-1982, and a reduction of 9.1 percent a year later, but still higher than in 1980-81.

IHMA is an institution charged by law to maintain reasonable stability and order in domestic markets for basic food and feed grains. As rule of thumb, if IHMA buys 20 percent from the net marketable production it might be considered sufficient to influence the market behavior. Among the most important aspects that IHMA takes into consideration in administering the purchasing program are (1) the total national agricultural output, (2) IHMA storage capacity and processing of grain, (3) IHMA financial situation, and (4) grain stocks carry over by IHMA.

The purchasing volumes accomplished by IHMA as percentages of the net marketable production during operation over the 5-year period, 1978-1983, have been as follows: Corn purchases have ranged of 0.94 to 13.53 percent. Beans present a better situation because the range of purchases goes from 2.74 to 28.74 percent. Rice purchase have ranged from 0.01 to 12.27 percent. Sorghum purchases have ranged from only 0.13 to 6.16 percent of total marketable production. See Tables 4 and 5, Appendix C.

Looking at IHMA's achieved procurement as percentage of planned targets during the period 1978-1983, the following performance is indicated. For corn, the main staple food for the Hondurans, the percentage of goal accomplished ranges from 7.6 to 108.2 percent. For beans the percentage of goal obtained ranges from 20.9 to 344.4 percent. In the case of rice after the initial period, the percentage of goal accomplished ranged from 155 percent to 11.1 percent at the end. Finally, sorghum procurements have ranged from 2.9 to 207.1 percent of target. See Tables 6, 7, 8, and 9, Appendix C.

Due to the shortage in production, IHMA has had to import corn, beans, and

rice from time to time during the period 1978-1983. See Table 10, Appendix C. Most of these grains were imported from the United States of America. These imports were made to fulfill one of the most important functions of IHMA, that is, was to assure an adequate grain supply to the Honduran people.

D. Grain Sales

When IHMA develops its annual sales plan it defines only the total sales target for the whole agricultural period by product and storage location. However, IHMA takes into consideration stocks at the beginning of the period, planned purchases, and stabilization stocks. Stabilization stocks are used to help maintain price stabilization in the internal market, and for protection against unforeseen contingencies.

The main channels of distribution that IHMA has used to sell its grain until now have been: (1) BANASUPRO, (2) governmental institutions, (3) exports, and (4) domestic wholesale and retail firms. The latter have been the major type of outlet.

To observe the behavior of the grain wholesale market prices during IHMA operations, the period 1978-1985 was chosen. Reported average monthly wholesale prices for the basic grains in Honduras for this period are shown in Tables 12 to 15, Appendix C. The prices reflect seasonal harvest patterns and the relatively constant volumes of demand from month to month. For example, wholesale prices of corn normally are lowest during the main harvest period for the first crop (October-December) and next lowest during the peak harvest of the second crop (May-June). Normally, IHMA's support prices (Table 1) are above wholesale market prices during the harvest months, but well below the market prices later in the season. IHMA is active in purchasing from farmers and first handlers during the seasonal harvest peaks and active in selling from its accumulated storage stocks

prior to the harvest periods for the following crop year. (e.g. July-September for corn).

The market prices in Tables 12 to 15, Appendix C are not directly comparable to the IHMA procurement prices in Table 1 because they are wholesale prices rather than prices paid to producers. Nonetheless, general patterns between government support prices and market prices since IHMA started operations can be seen. Since 1979-80 the average annual wholesale price of corn was 134 percent of the support price; in 1983-84 it was only 91 percent. For beans the average annual wholesale price was 173 percent of the support price in 1979-80, but has been only about 90 percent of the support price for the past three years. For sorghum the wholesale price averaged 141 percent of the support price in 1979-80, but only about 100 percent over the past two crop years.

TABLE 2. IBMA OPERATIONAL RESULTS
(1000 LEMPIRAS)

	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85 (1)
Total Sales	1,646.3	6,105.9	21,469.8	13,433.2	26,406.9	38,992.8	4,896.1
Less: Purchase Costs	1,525.2	4,655.7	17,555.0	9,814.1	23,389.0	36,957.7	5,094.1
Gross Profit or Lost	121.1	1,450.2	3,914.8	3,619.1	3,017.9	2,035.1	-198.0
Less: Operational and							
Admin. Expenses	507.3	2,753.2	4,517.7	5,801.5	6,374.2	5,503.4	2,878.1
Financ. Services	1.7	22.9	13.7	31.3	343.4	947.1	222.1
Net Profit or Loss	-387.9	-1,325.9	-616.7	-2,213.7	-3,699.7	-4,415.4	-3,299.0
Less: Adjustments	0.0	23.5	0.6	17.9	90.2	0.0	0.0
Net Profit or Lost	-387.9	-1,302.4	-617.3	-2,231.6	-3,609.5	-4,415.4	-3,299.0

(1) June 30, 1984

Source: IBMA Finance Division

CHAPTER IV

REVIEW OF LITERATURE

Literature reviewed in this study is limited to that dealing with agricultural price policy and research related to the grain marketing system in Honduras.

Selected writings about agriculture policy, agricultural marketing boards in the developing countries, agricultural price supports, and producer-consumer welfare were examined. Studies done by International and Honduran technicians for the Agency for International Development in Honduras and the Honduran Institute of Agricultural Marketing were also considered.

The review of literature may help to understand or clarify the complex and polemic issue about the role that a government should perform in the grain marketing system. However, in ligth of the fact that Honduras is a developing country facing social, political, and economic problems, one cannot expect the government to perform well in the agricultural sector. Furthermore, problems such as the lack of funds, incomplete and inaccurate information, limited knowledge, and political intervention in the grain marketing lead to unsatisfactory results.

A. Review of Selected Literature on Agricultural Theory

Agricultural price policy has been argued to be one of the main tools that a government has to influence the development and the proper allocation of resources in the agricultural sector. Through this policy a government may achieve more equitable distribution of income among producers as well as achieve other objectives. John W. Mellor (6) points out that agricultural price policy is of particular importance with respect to income distribution, because agriculture produces the consumer goods that comprise the bulk of expenditure by low income

people. Even though agriculture is primarily a consumer goods producing industry, agricultural prices affect capital formation by their influence on distribution of income, industrial profits, and government net revenues.

The implementation of governmental price programs, as part of an agricultural price policy, has both critics and defenders. Calvin B. Hoover (3) pointed out that the hostile critics of these programs come close to saying: (1) the price programs have not been effective in limiting agricultural production and raising farm prices, and (2) the price programs have been anti-social in their effects through raising the cost of food and restricting supplies available to consumers. The defenders of governmental agricultural price programs have countered by saying in effect: (1) the price programs were effective in raising prices through limiting production of farm products, and (2) the price programs have not been anti-social in their effects because production of farm products over the whole period increased greatly while the real incomes of consumers likewise increased greatly during the period. Hoover concluded by saying that is simple not feasible to judge the results of the programs which the government had in mind during any one part of the period. Furthermore, confusion arises from attributing the good times or bad times for the farmer during the period primarily to what the government did or did not do in its agricultural price programs. Finally, he says that in any event, governmental programs in support of farm prices cannot be expected to be the major factor in preventing economic depressions. Fiscal and Monetary measures, governmental spending programs, the redistribution of income designed to maintain or increase consumption, incentives for investment and other factors in their totality are likely to outweigh by far the effect of farm price programs by themselves.

A commom practice in the majority of developing countries has been the

active government role in the whole process of grain marketing. This intervention usually has been carried out by marketing boards. John C. Abbott (1) defines a marketing board as a public body set up by government action and delegated legal powers of compulsion over producers and handlers of primary or processed agricultural products. Abbott points out that in the developing countries, where the main initiative has often come from the government, broader considerations, including the overall development of agricultural production, protection of consumers, expansion of exports earnings, and extension of government control over important parts of a national economy, are involved. According to Abbott, six types of boards may be distinguished, with progressively greater acceptance of responsability, administrative capacity, marketing skill, and application of capital, namely: (1) Advisory and promotional boards, (2) Regulatory boards, (3) Boards stabilizing prices without engaging in trade, (4) Boards stabilizing prices by trading alongside other enterprises, (5) Export monopoly marketing boards, and (6) Domestic monopoly marketing boards.

Abbott specifies that the stabilization of prices over the short run depends greatly on the skill of board directorates in forecasting future market situations and handling their reserve stocks and stabilization funds. Furthermore, it has been pointed out that strict concentration on stabilization of prices could have an adverse effect upon producers incomes where their output varies considederably and free market vary inversely with quantities.

One of the main problems that marketing boards face in developing contries is that they are overstaffed and also may personal integrity. In this respect, Abbott says that the general impression is that staff allocations which are adequate in the initial years become inflated later. Also, the directors of some of the government-sponsored boards have been subjected to political

pressure which has resulted not only in thr misuse of funds but also in the adoption of economically unsounded price polices.

The objective of price support program, in the majority of cases, has been to support producers income, income distribution, and to protect producers from market variability which causes prices go below the supply-demand balance price. The method to determine the price support level has not been clearly defined until now. Some economists believe that is correct to set the price support levels according to cost of production. However, others believe that other types of economic statistics are more useful. E.C. Pasour, Jr. (9) argues that attent to set price supports on the basis of production outlays are futile in real world production because the higher the level at which prices are supported above the market level, the higher will be the required production outlay. Consequently, when expected product price is supported above the current market level, increases in product price will be capitalized into prices of production rights, land and other specialized inputs through competitive market forces so that expected product cost outlays tend to rise to meet expected returns.

Thomas A. Miller and Jerry A. Sharples (7) go beyond criticism about the use of cost of production to set the support prices. They say variables such as economic well-being of farmers, federal budget costs, cost of production, and the structure of the farm sector have to be considered in setting the support prices. Their opinion about the use of cost of production is that it is complicated, expensive to measure, and politically vulnerable. Another important aspect that they point out is cost of production is not an infallible guide to setting the level of target prices. Using cost of production to determine target prices would appear to be most legitimate for a homogeneous agricultural sector where all farms have the same costs.

John W. Mellor (6) proposes also another alternative to set the level of support prices. He says that the level of support should be determined by estimates of the equilibrium price under the expected supply and demand conditions of the approaching year. Mellor is against the use of cost of production to determine the support level, partly because the context assumed is one of improving technology and hence declining unit costs. He further states that the basic incentive for expanding production is provided by declining unit costs, not rising prices.

In defining agricultural price policy, the ultimate objective of marketing boards, is stated to be enhancement of producer and consumer welfare. Thomas A. Miller and Jerry A. Sharples (7) say economic well-being of farmers should be the primary factor in setting income supports. Protection of supplies and prices of foodstuffs to low income consumers is a widely recognized goal.

From all of the above, it seems that the controversy about using cost of production or other economic variables to set support prices is influenced by personal belief or the aggregate of political concensus. Once this polemic problem is resolved, much confusion might be prevented.

B. Review of Research on Grain Marketing in Honduras

Papers done by The Ohio State University and Kansas State University, institutions which have support from A.I.D. in Honduras, were taken into consideration in this report. Also a Master's thesis from North Carolina State University and the report of the U.S. Presidential Agriculture Mission to Honduras were examined.

Pollard, Grahan, and Cuevas (11), point out that IHMA's price policy until 1980 had been to announce the maximum price a farmer would receive from IHMA

at the beginning of each crop season. But after 1980 the minimum price paid by IHMA was used as the announced price. They said, this change was undertaken because apparently very few farmers actually received the maximum price under the former scheme. Furthermore, because IHMA can only purchase about 20 percent of the marketable surplus of basic grains, if a farmer realizes there is little chance of consumating his sale to IHMA then the announced price has minimal impact even if yhis price is above the market price.

Jaime J. Salinas (12) arrives at the same conclusion. In his research, he found that during period which IHMA has been setting the support prices, the support price was not significant in the explanation of the corn acreage supply. Such situation was indicated by the level of significance of the estimated coefficient for IHMA, and partly explained by the short period of IHMA's operation (six years).

Pollard, et. al., (11) say that IHMA in its price stabilization policy has caused that retail prices to vary less than wholesale retail prices for all grain. They argue, this is very likely due to the additional supply provided by imports to smooth out retail prices.

Miguel Loria and Carlos E. Cuevas (5) found that the main marketing channels used by farmers in Honduras in selling their grain are (1) wholesalers, (2) IHMA, and (3) others. About 24 percent of the farmers sold their harvest to IHMA, whereas 76 percent sold to private intermediaries during 1983. Furthermore, they determined that on average, farmers receive from intermediaries a net price greater than a net price based on the official price announced by IHMA. That is so because of the high cost per quintal associated with IHMA transactions, almost 6 times as high as the costs involved in selling to other intermediaries. They conclude by saying (1) transaction costs associated

with IHMA procedures should be reduced, and (2) IHMA operations appear to have a positive effect on market prices and market structure.

With respect to the losses that IHMA has reported during operations, Michael S. Hanrahan (2) proposes that these should be viewed as the costs of the social welfare services provided by IHMA, not as outright losses. Further, to date, IHMA has cost to the government of Honduras nothing. Its annual losses have been subsidized by international agency donations (compare Table 1 and Table 2, Appendix C).

The results of these studies about IHMA's performance in the grain marketing system leave ample room for additional research. Among the unresolved problem are (1) the size of IHMA's utility margin to cover administrative and operational expenses, (2) what support or sale level-prices should be set to obtain that reasonable utility margin, and (3) the magnitude of the economic impact generated by IHMA to the benefit of the economy of Honduras.

CHAPTER V

IHMA's SIMULATION MODEL FOR TESTING ALTERNATIVE

INTERVENTION STRATEGIES

The present IHMA Simulation Model for Testing Alternative Intervention Strategies was developed by Kansas State University under the USAID-supported IHMA/KSU program in Honduras (10). This model was developed as part of the technical assistance furnished to the Honduran Agricultural Institute of Marketing from KSU through the Food and Feed Grain Institute.

The Simulation Model for Testing Alternative Intervention Strategies involves three categories: (1) supply, (2) demand, and (3) marketing and distribution. This model is a computer-based management tool for projecting the benefits and costs to be expected if a specific strategy for grain price stabilization were implemented.

The Simulation Model in its computerized form operates with Lotus 1-2-3 on micro-computer as a structured worksheet of interlinked tables, complete with titles and source footnotes in the Spanish language (The 1-2-3 is a software package for MS-DOS and other microcomputers, marketed under copyright and registered trademark of Lotus Development Corporation). It follows the standard "road-map" logic of electronic spreadsheets, but incorporates much of the power of 1-2-3 for handling relatively complex conditional program statements and functions. Data files are stored within the model, and can be updated or modified with 1-2-3 file commands. Hard copy of the output of each simulation tested and graphic presentations desired for specific outputs are generated with 1-2-3 print and graph commands, respectively.

The model simulates the impacts on average monthly market prices for corn, beans, rice and sorghum of IHMA's grain procurement and sales operations

by movement along the short-run domestic demand curve for each of these grains. The model takes as given (estimates exogenously) for a specified past or projected crop year monthly data for (1) supply quantities, (2) demand quantities and (3) market prices for corn, beans, rice and sorghum in the domestic market. The monthly supply quantities are taken as infinitely inelastic, and include (1) domestic off-farm sales, (2) imports, and (3) sales by IHMA. Monthly demand quantities are taken to be given at the equilibrium market prices, and include (1) on-farm use for seed, livestock and loss, (2) rural consumption, (3) urban consumption, (4) industrial use, (5) IHMA purchases and (6) exports. Except for the IHMA stocks, monthly inventory levels within the system are assumed to be constant. The average monthly equilibrium market prices at the farm level and at the wholesale level, properly weighted for quality and market location, are determined empirically or exogenously and given for the model.

The nature of the demand curve for each grain is given to the model exogenously, based upon findings of previous demand and price analysis for Honduras. Arc price flexibilities for a 1-percent change in quantity up to a total quantity change of $\pm$ 5 percent are -5.0 for corn, -6.25 for beans, -3.5 for rice and -4.0 for sorghum. Arc price flexibility coefficients for each 1 percent change in quantity for changes from equilibrium quantities greater than $\pm$ 5 percent continually decline in absolute terms as the deviation from equilibrium widens. For example, for changes in quantity greater than $\pm$ 65 percent the price flexibility coefficients are -1.25 for corn, -1.5625 for beans, -0.875 for rice, and -1.0 for sorghum (see Table Z, Appendix C). With these demand price flexibility coefficients and the net market purchase (or sales) volume by IHMA, the model calculates simulated monthly market quantities and prices if IHMA had not been in the market. This is done by (1) determining the simulated quantity without IHMA's

net purchases (or sales), (2) determining the corresponding simulated price by moving along the demand curve, assuming full short-run adjustment would come in price rather than partly in quantity, (3) calculating the simulated value of the monthly transactions by multiplication of the adjusted quantity by the corresponding simulated price, (4) comparing the simulated market value with the equilibrium market value to measure the simulated impact of IHMA's stabilizing operations on sellers (producers) and buyers (consumers and processors).

Measured in this manner, IHMA has a favorable impact on grain producers' incomes only in the months when (1) the volume of government purchases exceeds the volume of government sales of the grain, and (2) aggregate sales by farmers exceed aggregate purchases by farmers—in other words when on balance IHMA represents a customer (market outlet) rather than competitor to producers. Likewise, IHMA has a favorable impact on consumers' or processors' expenditures for grain only in months when (1) volume of government sales exceeds the volume of government purchases of the grain, and (2) aggregate purchases by consumers (or processors) exceeds aggregate sales of the grain by them—in other words when on balance IHMA is a customer (market supplier) rather than a competitor. Thus by definition, it is impossible for IHMA to register a favorable impact on both producers and consumers of the same grain during the same month.

An over-all schematic diagram of the tabular projections included in the Simulation Model is presented in Figure 1. Each of the numbered rectangular boxes represents a table of monthly projections over the forth-coming crop year for the five basic grains.

The flow of computations in the model starts from the upper left corner of the chart (Table 1) and proceeds downward and to the right (Table 36 to 40). The upper section of the diagram portrays the supply-category tables, (Production,

FIGURE I

SCHEMATIC DIAGRAM OF SIMULATION MODEL FOR TESTING ALTERNATIVE INTERVENTION STRATEGIES
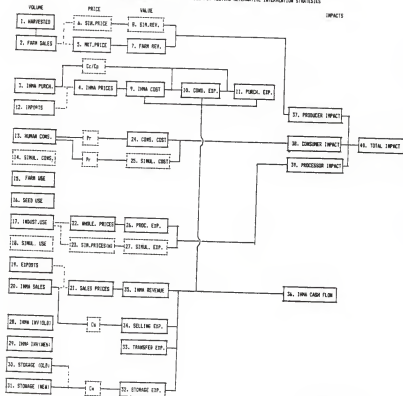
IMWA/VSD 08/18/84

Marketings, Imports, and Carry-Over), cumulating in the simulated impacts of the alternative on grain producers (Table 37). The center section portrays the demand-category tables (Urban Consumption, Rural Consumption, Industrial Use, Animal Use, Seed Use, Stocks Build-Up, and Exports), leading to the corresponding simulated impacts on consumers (Table 38) and processors (Table 39). Boxes 9-11 and those in the lower section of the diagram portray the marketing and distribution-category tables, (Purchases, Sales, Handling, Prices, Margins, Transport, Conditioning, Storage, Processing, and Packaging), cumulating in the projected costs for the alternative (Table 36, IHMA Cash Flow).

Additional patterns are reflected in schematic diagram. All boxes in the left-most column represent projected physical volumes (quintals, metric tons, quintal-months) for the alternative. Those in the next column represent prices and costs per unit quantity, e.g., Lempiras per quintal. All boxes in the remaining columns represent total values obtained by applying unit prices to the corresponding volumes, and are reported in units of 1000 Lempiras. Computational hierarchies and patterns among the tables in the Simulation Model are portrayed by the schematic diagram also. Solid lines connecting boxes represent computational relationships. Tables portrayed by boxes enclosed by solid lines represent projected actual values under the alternative. Those portrayed by boxes enclosed by dotted lines represent simulated values without intervention, which are used for comparison to project estimated impacts of the alternative.

A. How the Model Works

As illustrated by the schematic diagram, the Simulation Model is designed to proceed through the whole series of calculations needed to project the impacts of a given alternative, once the characteristics of the alternative are fed into the

computer.

The computational routine, the standardized data, and the necessary supporting work tables remain within the model's computerized files, as do the output tables for the base case. The base case simulation shows projected impacts over the forth-coming crop year under the existing intervention program. When the characteristics of an alternative strategy are fed into the computer, they replace those of the base case, and the computer model recalculates the whole simulation automatically. A new set of output tables is generated, cumulating in the simulated impacts for that alternative. This process can be repeated for as many alternatives and sub-alternatives as desired.

B. Computational Classification of Tables in the Model

The output tables of the Simulation Model can be classified into four different types with respect to data requirements, as shown in Figure 2. Type A includes tables needing specific input data for each alternative. These are Tables 3, 4, 20, and 21, covering projected volumes and prices of government grain purchases and sales for the alternative under study. Nine tables are Type B. They are computed by the model based on input factors or coefficients specific to the alternative. Another thirteen of them, Type C, are computed by the model from factors and coefficients which are constant from one alternative to another. The final fourteen tables in the model, Type D, are computed internally without additional input data.

As in the schematic diagram, the double spacing in the classification of tables separates the supply section (Tables 1-12), the demand section (Tables 13-27), the distribution section (Tables 28-35), and the impact section (Tables 36-40).

FIGURE 2. CLASSIFICATION OF TABLES FOR THE IHMA MODEL
(Table No. and Title by Category)

A. Tables of Input Data Specific to Alternative	B. Tables Computed with Factors for Alternative	C. Tables Computed with Constant Factors	D. Tables computed without Additional Data
3. Gov't Purchases 4. Gov't Prices	1. Harvest Volume 5. Market Prices	6. Simul. Market	2. Sales Volume 7. Farm Revenue 8. Simul. Revenue 9. Purch. Cost
	12. Import Volume	10. Cond. Expense 11. Acquis. Expense	
		13. Human Consumpt 15. Farm Use 17. Industry Use 23. Simul. Prices 24. Consumer Expend. 25. Simul. Expendit.	14. Simul. Consumpt 18. Simul. Industry
20. Gov't Sales 21. Gov't Prices	16. Seed Use 19. Export Volume 22. Wholesale Prices		26. Industry Expense 27. Simul. Expense
	28. Gov't Invent. (old) 29. Gov't Invent. (new)	30. Storage Volume (old) 31. Storage Volume (new) 32. Storage Expense 34. Selling Expense	35. Gov't Revenue
	33. Transf. Expense		36. Gov't Cash Flow 37. Producer Impact 38. Consumer Impact 39. Processor Impact 40. Total Impact

C. Linkages Within the System

Although only 13 of the 40 tables in the Simulation Model require an unique input to the alternative under study, most of the 40 tables will contain different values for each alternative. The reason is that when "earlier" tables in the model's computational system are changed, it automatically caused values changes in the "later" tables to change.

For instance, consider the impacts on the hierarchy of tables in the model from changes in the planned volume of government grain purchases, Table 3. This will affect directly the values in Tables 7, 9, 10, and 11, causing "second-generation" effects on the values in Tables 36, 37, and 40, even though nothing else has changed. Furthermore, government sales (Table 20) are related to government purchases (Table 3), so that changes in Table 3 also indirectly affect values in Tables 24, 26, 29, 31, 32, 33, 34, 38, and 39. Thus, changes in input data to represent a new alternative made at one point in the model cause reverberations throughout the system. The projected net impacts on simulated total benefits and costs are determined only after all of these linkages have been worked through the model for that alternative and the new values for Table 36 through 40 are calculated.

The ability of the model to trace all of the reverberations to a final set of projected net impacts makes it a powerful tool for discovering more effective intervention strategies than have been tried before.

D. Data Used by the Model

Data used in the Simulation Model were taken from records of IHMA-CIES and the Secretaria Permanente del Tratado General de Intergracion Economica

Centro-Americana, for the agricultural year 1984-1985. As can be seen by closer review of the listing of input needs in Figure 3, the specific data requirements for testing the alternative intervention strategy are indeed reasonable. The needed data input as well as the needed constant input are described in Figure 3.

1. Needed Data Input

Monthly input data for each grain for the alternative are needed only for Tables 3, 4, 20, and 21. The annual production supply response of the country's farmers for each grain under the alternative is needed for the computation within the model of Tables 5, 16, and 22. Changes in ending inventory (carry-over stocks), and in beginning inventories expected under the alternative are needed for Tables 12 and 19 and for Tables 28 and 29, respectively. Transfer patterns among IHMA's rural and terminal silo facilities under the alternative are needed as input for computation of Table 33. No other specific-alternative input data is needed to apply the Simulation Model for the alternative.

2. Needed Constant Input

Additional input information which is constant across alternatives is needed in the model, as shown in the last column of Figure 3. However, once this information has been provided for the first alternative to be tested, it can be applied to as many additional simulations as desired. This is true of average monthly patterns of prices and quantities and prices for Tables 1, 5, 16 and 22. It is true of the short-term coefficients of direct price flexibility of demand (Table 2) needed for computing Tables 6, 23 and 25. It is true of IHMA's direct costs per quintal for procuring, handling, conditioning, storage, milling, selling and transporting each type of grain (Tables 10, 11, 32, 33, 34). It is true of population

and per capita consumption figures for Tables 13A, 13B and 15A, and of annual utilization rates for Tables 15B, 16 and 17. Finally, it is true of retail marketing margies needed for Tables 24 and 25 and of storage volume formulae for Tables 30 and 31.

In addition to the 40 output Tables of IHMA's Strategy Simulation Model shown in Figure 3, other tables in the system include five work tables, the Table Z "computer-look up" table, the summary "Cost-of-Sales" table, and three sets of sub-tables. Because these are supporting tables only, they normally need not be printed for each of the alternatives to be considered.

FIGURE 3. SUMMARY OF INPUT NEEDS FOR TABLES IN THE IHMA MODEL

TABLE	NEEDED DATA INPUT	NEEDED CONSTANT INPUT
1. Harvest volume	Farms, area, production	Ave., monthly harv(%), loss factors
2. Sales volume	None	None (T1−T15A−T15B−T16)
3. Gov't purchases	Total monthly purchases	None
4. Gov't prices	Monthly purchase prices	None (pre-weighted by quality and loc.)
5. Market prices	Supply response for alternative (%)	5 year ave. monthly prices
6. Simul. market	None	Table 2, price flexibility cofficients
7. Farm revenue	None	None (T3*T4)+(T2−T3)*T5
8. Simul. revenue	None	None (T6*T2)
9. Purchase cost	None	None (T4*T3)
10. Cond. expense	None	Direct cost/qq (*T3)
11. Acquis. expense	None	Direct cost/qq (*T3)
12. Import volume	Ending invent, change	None (T13C*T15A*T15B*T16+ T17−T2)
13A. Urban consumption	None	Population, annual per-capita consumption.
13B. Rural consumption	None	Population, annual per-capita consumption
14. Simul. consumption	None	None (% change*T13C)
15A. Farm consumption	None	No farms*family size* per capita rates.
15B. Feed use	None	Gross production*feed rates
16. Seed use	Supply response for alternative (%)	Areas, seeding rates, planting dates
17. Industry use	None	Historical use; annual growth 3%.
18. Simul. industry	None	None (% change*T17)
19. Export volume	Ending invent, change	None (T2−T13C−T15A−T15B−T16−T17)
20. Gov't sales	Total monthly sales	None
21. Sales prices	Monthly release prices	None
22. Wholesale prices	Supply response for alternative (%)	5-year ave. monthly prices
23. Simul. prices	None	Table 2, price flexibility cofficients
24. Consumer expend.	None	Retail margin (T13C*(22/ 1.0−M))
25. Simul. expendit.	None	Retail margin (T13C*(23/ 1.0−M))
26. Industry expense	None	None (T20B*T21)+(T17−T20A)*T22
27. Simul. expense	None	None (T17*T23)

28.	Gov't inventory (old)	Beginning inventory and plan	None $(I_{t-1} - S_t)$
29.	Gov't inventory (new)	Inventory policy and plan	None $(I_{t-1} + P - S_t)$
30.	Storage volume (old)	None	qq = month formula (*T28)
31.	Storage volume (new)	None	qq = month formula (*T29)
32.	Storage expense	None	Direct expens./qq-mo (*(T30+T31))
33.	Transfer expense	Transfer pattern for alternative	Transfer cost/qq
34.	Selling expense	None	Sales exp./qq (*T20)
35.	Gov't revenue	None	None (T20*T21)
36.	Gov't cash flow	None	None (T35-T9-T10-T11-T32-T33-T34)
37.	Producer impact	None	None (T7-T8)
38.	Consumer impact	None	None (T23-T24)
39.	Processor impact	None	None (T27-T26)
40.	Total impact	None	None (T37+T38+T39)

CHAPTER VI

SIMULATED ECONOMIC IMPACT OF IHMA

The IHMA's Simulation Model was first run by Phillips, Maxon and Hugo in August 1984 as part of the technical assistance given to IHMA from KSU. The IHMA's administration saw this first investigation as something positive for the Institute, because it was the first time that IHMA would be able to estimate and evaluate the economic impact that they could expect on producers, consumers and processors. It was also the first time that the IHMA cash flow and the total impact on the Honduran economy could be simulated before a program was adopted.

The first alternative using the IHMA model was called Marketing Plan for 1984-1985. It was a test run and not really an alternative because no changes in the planned grain marketing intervention were proposed. The plan was run, as the model points out, to foresee the IHMA's economic impact in the marketing system as well as the IHMA cash flow during that agricultural year, and to serve as the base case against which alternatives could be compared.

The IHMA Simulation Model is used in this research to analyze IHMA's ability to carry out its objectives using simulated and actual data to show IHMA's performance.

A. Simulated Economic Impact of IHMA Using Marketing Plan Data

Inputs used in the model were projected or estimated based on past figures. For instance, to project monthly volumes of basic grains production, average patterns for the past six years were used as base. The current IHMA procurement plan and planned sales program for 1984-1985 were used. Current IHMA procurement and sales prices for 1984-1985 were used.

The goals established in the procurement plan for each grain for 1984-1985 are 949.6 thousand quintals of corn, 74.1 thousand quintals of beans, 69.7 thousand quintals of rice and 59.7 thousand quintals of sorghum, for a grand total of 1,153.1 thousand quintals of grains. Monthly data by grain are shown in Table 3 of Appendix D. Procurement prices for IHMA by grain can be seen in Table 4 of the same Appendix.

The goals fixed for the sales program by grain for 1984-1985 are 1,157 thousand quintals of corn, 68 thousand quintals of beans, 113 thousand quintals of paddy rice, 80 thousand quintals of sorghum, and 37 thousand quintals of milled rice, for a grand total of 1,455 thousand quintals of grains. Monthly data by grain is presented in Table 20 of Appendix D. Sale prices for IHMA by grain are shown in Table 21 in the same Appendix.

The IHMA's Simulation Model output shows simulated income to producers from grain sales with both (1) planned IHMA intervention and (2) without IHMA intervention. With IHMA intervention (Table 7, Appendix D) the simulated farm revenue generated by grain is 54.7 million Lempiras for corn, 15.8 million Lempiras for beans, 35.6 million Lempiras for rice and 7.8 million Lempiras for sorghum, for a total revenue of 113.9 million Lempiras. By contrast with no IHMA intervention (Table 8, Appendix D) the farm revenue would be reduced substantially. Corn revenue would decrease by 26 percent, beans revenue by 17 percent, rice revenue by 3.5 percent and sorghum revenue by 20 pecent.

If IHMA did not participate in the farmers markets as a grain buyer, the simulated total revenue would be reduced by 25.8 million Lempiras or 17.3 percent (Table 37, Appendix D).

IHMA's Simulation Model also generates simulated costs of grain products to consumer both (1) with IHMA's planned intervention and (2) without IHMA

intervention. With IHMA intervention (Table 24, Appendix D) simulated consumers' costs by grain are 104.2 million Lempiras for corn, 44.2 million Lempiras for beans, 100 million Lempiras for rice and 11.8 million Lempiras for sorghum. The grand total cost for the four basic grains would be 260.2 million Lempiras. Without IHMA intervention, (Table 25, Appendix D) simulated consumers' costs are increased considerably. For instance, corn would be increased by 25 percent, beans by 8.2 percent, rice by 12 percent and sorghum by 4 percent, for a final cost increase of 16.1 percent. Consumers are better off when IHMA participates in grain marketing to stabilize quantities and prices from month to month because their costs are reduced substantially.

Simulated processor expenses per grain with and without IHMA intervention are also generated by the IHMA Simulation Model. These expenses with IHMA intervention (Table 26, Appendix D) are 26.2 million Lempiras for corn and 2.7 million Lempiras for sorghum. Expenses to processors for rice and beans are not generated by the model because these grains are not used as raw materials. Processors expenses for corn without IHMA intervention, (Table 27, Appendix D) would be increased by 25 percent. On the other hand, processor expenses for sorghum are reduced by 6 percent. This is because according to the Marketing Plan for 1984-1985, IHMA's role as a competitive buyer of sorghum overshadows its role as a supplier to processors from its storage facilities.

In order for IHMA to carry out the Marketing Plan for 1984-1985, the Simulation Model output points that IHMA needs a working capital budget of 20.0 million Lempiras to cover procurement costs, (Table 9, Appendix D), 2.3 million Lempiras for conditioning the grain (Table 10, Appendix D) and 350.7 thousand Lempiras for purchasing expenses (Table 11, Appendix D). The simulated total cost of sales would be 22.6 million Lempiras. Furthermore, IHMA has to incur

other expenses such as storage, transfer and selling. Simulated expense for storage reaches the amount of 1.2 million Lempiras (Table 32, Appendix D), that for transfer expense, 502.5 thousand Lempiras (Table 33, Appendix D), and that for selling expenses, 431.0 thousand Lempiras (Table 34, Appendix D).

IHMA will reduce its beginning grain inventory of 1.011 million quintals to 674.5 thousand quintals (Tables 28 and 29, Appendix D) by September 1, 1985 if it is able to accomplishes the procurement and sale targets as defined in the Marketing Plan for 1984-1985.

IHMA simulated revenues from grain sales for this particular plan are 31.1 million Lempiras. To these revenues, corn will contribute 21.4 million Lempiras (68.7 percent), beans 3.3 million Lempiras (10.7 percent), paddy rice 3.2 million Lempiras (10.2 percent), milled rice 1.8 million Lempiras (5.9 percent) and sorghum 1.4 million Lempiras (4.5 percent). See Table 35, Appendix D.

IHMA cash flow (Table 36, Appendix D) generated by grain for the current plan would be 495.7 thousand Lempiras for rice, 142.3 thousand Lempiras for beans, a negative amount of 3.3 thousand Lempiras for sorghum, and also a negative amount of 207.4 thousand Lempiras for corn, for a grand total of 427.3 thousand Lempiras.

The simulated economic impact that IHMA may generate on producers, consumers and processors as it administers its Marketing Plan 1984-1985 is as follows: On producers (Table 4) the economic impact reaches the quantity of 25.1 million Lempiras. Corn is the grain which generates the most benefit to producers, contributing 20.3 million Lempiras. The simulated benefit to producers of other grains is beans, 3.6 million Lempiras, sorghum, 1.7 million Lempiras, and rice, (613.9) thousand Lempiras. On consumers (Table 5) the economic impact reaches the figure of 41.8 million Lempiras. Again corn is the grain which

contributes most of the benefit to consumers with 25.8 million Lempiras, while rice contributes 11.9 million Lempiras, beans 3.6 million Lempiras and sorghum 462.7 thousand Lempiras. In the case of processors (Table 6) the simulated economic impact comes to a total contribution of 6.3 million Lempiras.

When the three sources of simulated benefits are combined, the Institution accomplishes a total simulated benefit of 73.3 million Lempiras in favor of the country as shown in Table 7. Corn contributes to this benefit 71.2 percent, rice 16.1 percent, beans 10 percent and sorghum 2.7 percent.

As shown in Table 3, the simulated economic implications for IHMA, if the Marketing Plan for 1984-1985 is developed as defined in the model, are (1) IHMA will have to incur a purchase cost of 24.7 million Lempiras; (2) IHMA would receive 31.1 million Lempiras as sales revenue; (3) IHMA would generate a gross margin of 5.1 million Lempiras as result of the purchase and sale transactions; and finally (4) IHMA would report a net loss under this alternative of more than 5 million Lempiras.

Corn and rice are the grains which will generate the most gross margin in favor of the Institute. However, the total direct costs for corn are excessively high. It is important to point out that after seven years of IHMA operations, the Institution continues generating losses even though the data used in the present Marketing Plan for 1984-1985 are projection rather than actual figures.

TABLE 3. IHMA: Economic Implications, Marketing Plan 1984-1985
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	TOTAL
SALES (35)	21,404.5	3,329.0	3,022.0	1,401.8	31,157.2
PURCHASES (9)	14,623.2	3,150.9	1,367.7	879.5	20,021.3
INVENT. (36)	(3,194.0)	269.0	(2,726.3)	(299.9)	(5,951.2)
GROSS MARGIN	3,587.3	447.1	928.0	222.4	5,184.7
CONDIT. (10)	1,860.1	127.3	180.6	94.8	2,262.8
RECEIV. (11)	288.7	22.6	31.2	18.2	350.7
TRANSF. (33)	395.0	31.9	54.8	20.8	502.5
STORAG. (32)	899.4	102.4	141.1	67.6	1,210.5
SALE (34)	351.5	20.6	34.5	24.3	430.9
TOTAL DIRECT COSTS	3,794.7	304.8	432.2	225.7	4,757.4
NET OVER DIRECT COSTS	(207.4)	142.3	495.8	(3.3)	427.7
ADM. & OVERHEAD COSTS *	—	—	—	—	5,503.4
NET LOSS	—	—	—	—	(5,075.7)

*Same figure as in 1983

Source: Tables 9, 10, 11, 32, 33, 34, 35, and 36 Appendix 0 and IHMA Financial
Division.

TABLE 4. Simulated Monthly Impact of Government Market Intervention on Producer Incomes from Grain Sales (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	(2,976.0)	(515.8)	(1,234.5)	0.0		(4,726.4)
OCT	3,467.0	1,246.2	(1,098.5)	0.0		3,622.8
NOV	11,254.8	616.3	724.2	47.3		12,642.6
DEC	8,551.4	(129.5)	1,621.8	178.4		10,214.2
JAN	1,219.7	1,282.6	36.2	393.8		2,932.3
FEB	673.2	2,420.5	(242.9)	835.3		3,786.0
MAR	(1,451.8)	(56.4)	(200.4)	389.0		(1,319.6)
APR	(421.0)	(299.7)	(227.8)	(107.6)		(1,056.2)
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	(931.8)	0.0	0.0		(931.8)
TOTAL	20,317.2	3,632.4	(613.9)	1,748.2		25,083.9

Source: Calculated by subtracting simulated revenues to producers from grain sales without government intervention (Table 8) from projected producer revenues from grain sales under this alternative (Table 7). Appendix B.

TABLE 5. Simulated Monthly Impact of Government Market Intervention on Consumer Expenditures for Food (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	6,110.6	1,275.4	2,039.6	118.5		9,544.1
OCT	(3,548.9)	(2,258.4)	2,209.5	119.3		(3,470.5)
NOV	0.0	(1,217.4)	(2,234.6)	(263.6)		(3,715.7)
DEC	(5,188.4)	500.2	(3,412.9)	(231.8)		(8,332.9)
JAN	(2,697.1)	(1,981.5)	(416.9)	(352.2)		(5,367.7)
FEB	(916.4)	(3,042.3)	798.0	(525.0)		(3,685.8)
MAR	3,081.2	266.6	849.9	(341.6)		3,856.2
APR	3,633.6	677.4	1,388.4	313.1		6,012.5
MAY	4,987.8	1,353.7	1,394.9	377.3		8,113.7
JUN	5,615.0	2,650.3	3,027.0	458.6		11,750.9
JUL	6,678.6	3,467.0	3,189.6	685.9		14,013.1
AUG	8,079.3	1,851.3	3,101.2	104.2		13,136.0
TOTAL	25,835.3	3,622.2	11,933.8	462.7		41,853.9

Source: Calculated by subtracting simulated consumer expenditures without government intervention (Table 25) from projected consumer expenditures for basic grains and grain products under this alternative (Table 24). Appendix D.

TABLE 6. Simulated Monthly Impact of Government Market Intervention
on Processors Expenditures for Grains
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	1,534.0			0.0		1,534.0
OCT	(888.9)			0.0		(888.9)
NOV	0.0			(80.0)		(80.0)
DEC	(1,302.5)			(70.4)		(1,372.9)
JAN	(677.1)			(93.3)		(770.4)
FEB	(238.1)			(129.4)		(359.5)
MAR	773.5			(90.0)		683.6
APR	912.2			46.0		958.2
MAY	1,252.2			59.0		1,311.2
JUN	1,409.6			74.7		1,484.3
JUL	1,674.6			121.3		1,796.0
AUG	2,028.3			0.0		2,028.3
TOTAL	6,485.9			(162.0)		6,323.9

Source: Calculated by subtracting simulated processor expenditures
without government intervention (Tab 27) from projected grain
expendit. by processors under this alternative (Table 26).
Appendix D.

TABLE 7. Simulated Total Net Monthly Impact of Government
Intervention in Domestic Grain Markets (1,000 Lempiras)
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	4,668.6	759.6	805.2	118.5		6,351.8
OCT	(962.0)	(1,012.0)	1,119.0	119.3		(736.7)
NOV	11,254.8	(681.1)	(1,510.5)	(296.4)		8,846.8
DEC	2,068.5	378.7	(1,791.0)	(131.9)		500.3
JAN	(2,154.6)	(618.9)	(398.7)	(51.6)		(3,205.8)
FEB	(473.3)	(621.8)	555.0	200.8		(339.2)
MAR	2,483.0	210.2	649.5	(42.5)		3,228.2
APR	4,124.8	377.6	1,168.6	251.6		5,914.5
MAY	6,239.9	1,353.7	1,394.9	436.4		9,424.9
JUN	7,804.7	2,658.3	2,827.0	533.3		13,223.2
JUL	8,345.2	3,467.0	3,189.6	807.3		15,809.1
AUG	18,107.6	919.5	3,101.2	104.2		14,232.5
TOTAL	52,638.4	7,254.5	11,319.9	2,048.9		73,261.7

Source: Calculated by algebraic summation of the simulated
impacts on grain producers (Table 4), the simulated
impacts on final consumers (Table 5) and the simulated
impacts on grain processors (Table 6).

B. Simulated Economic Impact of IHMA Using Actual Information

The main objective of this part is to evaluate the economic impact generated by IHMA during 1984-1985. The Marketing Plan for 1984-1985, run previously is used as framework for the evaluation. Inputs used in this plan, IHMA Operations for 1984-1985, were mostly the same as those inputs used for the first run. Modifications were made only in Tables 3, 4, 12, 19, 20 and 21.

As depicted in Tables 3 and 4, Appendix E, purchases and prices offered by IHMA to producers from September to March were incorporated into the Model. Data used from April to August were estimated by applying the same behavior observed during the first seven month of 1984-1985. IHMA's imports and exports during the period September-May were taken into account (Tables 12 and 19, Appendix E). Finally, sales volumes and sale prices furnished by the Institute from September to March were also used for the present evaluation (Table 20 and 21, Appendix E). The same criterion as for purchases and prices offered by IHMA was applied to the remaining five months of 1984-1985.

Based on operations for seven months into the 1984-1985 program, the IHMA Simulation Model shows the following results with respect to procurements and estimated impacts on producers. Purchases by IHMA for the year are expected to total about 16 million Lempiras (Table 8) compared to 20 million Lempiras targeted in the Marketing Plan. Purchases are running about 93 percent of target for corn compared to 45 percent for beans, 55 percent for rice and 30 percent of the plan target purchases for sorghum (Table 8 and Table 3). With the lower procurements, simulated benefits to Honduran grain producers also are less than indicated in the plan. The simulated monthly market impact on producers over the 1984-85 crop year is about 17.4 million Lempiras compared to that under the plan of 25.8 million Lempiras (Table 4). Compared to target, indicated

producer impacts for 1984-85 IHMA operations are about 95 percent for corn, but are more questionable for the other grains. As seen by comparing Table 9 with Table 4, the impact simulated for IHMA operations has been negative for producers of beans and sorghum, but substantially greater than target for rice.

Impacts on Honduran consumers simulated by the Model for IHMA operations in 1984-85 are summarized by the results shown in Tables 8 and 10. Indicated sales by IHMA for the year are 35 million Lempiras, or about 3.8 million Lempiras greater than under the Plan. Compared to those under the Marketing Plan in Table 3, indicated sales of corn are about the same (98.4 percent), and those of sorghum are down (33.5 percent), but those of beans and rice are up substantially at 128.2 percent and 183.6 percent, respectively. The simulated impact of IHMA's 1984-85 operations on consumers is 33.8 million Lempiras (Table 10) compared to 41.9 million Lempiras under the Marketing Plan (Table 5). The consumer impact under actual operations is greater than under the Plan for beans and sorghum, but substantially less for corn and rice (compare Table 10 with Table 5). The major reason for the reduced benefits for corn and rice is the higher negative impacts in December, January and February when actual sales by IHMA were less than actual purchases. The impact of actual operations on processors is 4.1 million Lempiras, or 2.2 million Lempiras less than under the Plan (Table 11). The net total simulated impact under IHMA's Operations for 1984-85 is 55.4 million Lempiras (Table 12). This represents a substantial benefit by IHMA to Honduras, even though some 18.1 million Lempiras less than indicated for the 1984-85 Marketing Plan.

IHMA 's Simulation Model output indicates that this institution had used 16.0 million Lempiras to cover procurement costs (Table 9, Appendix E), 2.8 milion Lempiras for conditioning government grain (Table 10, Appendix E) and

674.8 thousand Lempiras for expenses of procuring and receiving government grain (Table 11, Appendix E), for a total cost of sales of government-owned grain of 19.5 million Lempiras (Summary Table 115, Appendix E). Moreover, IHMA had incurred other expenditures such as storing, transfering and selling government grain. Storage expenses had reached the sum of 1.2 million Lempiras (Table 32, Appendix E), transfer expenses 504.2 thousand Lempiras (Table 33, Appendix E) and selling expenses 438.9 thousand Lempiras(Table 34, Appendix E). Total direct costs sum to 5.654 million Lempiras for IHMA's 1984-85 operations. With the adjustments for reduction in IHMA's grain inventores of 15.2 million Lempiras (Table 8 and "INV" line of Table 36, Appendix E), actual operations indicate loss over direct costs of about 1.9 million Lempiras, and a total loss administrative and overhead costs of 7.4 million Lempiras (Table 8). This finding is in line with IHMA's historical record of substantial operating losses as presented in Chapter 3. On the other hand, the expediture in terms of operating loss of 7.4 million Lempiras to benefit Honduran farmers, consumers and processing industry by 55.8 million Lempiras seems to be a sound economic strategy.

The relatively high direct operating cost and operating losses under the IHMA Operations compared to the Marketing Plan for 1984-85 arise because of (1) the high government cost of grains inventories used during the year which moved from 5.9 million Lempiras to 15.2 million Lempiras, (2) lower IHMA's sales prices especially for beans, paddy rice and sorghum , and finally (3) the Institute does not earn cash flow from grain exports. It is important to point out that when IHMA carries out an export, the revenue generated from this transaction goes to the general account of the government of Honduras instead of to IHMA. This regulation is the result of the lack of foreign exchange that the Honduran government is facing currently.

TABLE 8. IHMA: Economic Implications, IHMA Operations for 1984-85
(1000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	TOTAL
SALES (35)	21,052.2	4,267.6	9,220.7	469.5	35,010.0
PURCHASES (9)	13,602.8	1,408.7	751.7	263.7	16,026.8
INVENT. (36)	(4,730.5)	(2,488.6)	(7,773.5)	(214.3)	(15,206.9)
GROSS MARGIN	2,718.9	370.3	695.5	(8.5)	3,776.3
CONDIT. (10)	2,412.7	127.3	182.4	103.2	2,825.6
RECEIV. (11)	606.9	22.6	22.2	23.1	674.8
TRANSF. (33)	395.0	31.9	56.3	21.0	504.2
STORAG. (32)	899.4	102.4	141.1	67.6	1,210.5
SALE (34)	351.5	20.6	37.7	29.1	438.9
TOTAL DIRECT COSTS	4,665.5	304.8	439.7	244.0	5,654.0
NET OVER DIRECT COSTS	(1,946.6)	65.6	255.8	(252.5)	(1,877.7)
ADM. & OVERHEAD COSTS *	–	–	–	–	5,503.4
NET COSTS	–	–	–	–	7,381.1

*Same figure as in 1983

Source: Tables 9, 10, 11, 32, 33, 34, 35, and 36 Appendix D and IHMA Financial
Division.

TABLE 9. Simulated Monthly Impact of Government Market
Intervention on Producer Incomes from Grain Sales
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	(739.2)	(1,877.9)	(353.7)	0.0		(2,178.8)
OCT	1,136.0	(960.0)	1,459.2	7.7		1,643.0
NOV	8,154.1	(172.2)	259.7	34.1		8,275.6
DEC	7,650.0	(459.1)	12.1	17.7		7,220.6
JAN	3,823.7	(1,467.9)	(117.2)	46.7		1,485.3
FEB	3,532.7	1,845.7	(207.3)	(263.4)		4,901.7
MAR	(3,034.7)	260.8	(228.6)	45.5		(2,945.1)
APR	(417.7)	(32.0)	0.0	(19.2)		(468.9)
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	(478.7)	0.0	0.0		(478.7)
TOTAL	19,304.8	(2,541.3)	832.2	(137.0)		17,458.8

Source: Calculated by subtracting simulated revenues to producers
from grain sales without government intervention (Table 8)
from projected producer revenues from grain sales under this
alternative (Table 7). Appendix E.

TABLE 10. Simulated Monthly Impact of Government Market Intervention
on Consumer Expenditures for Food
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	1,515.9	2,390.6	655.4	118.5		4,680.5
OCT	(1,052.1)	3,288.8	(3,314.7)	76.4		(1,001.5)
NOV	(5,176.2)	618.6	(1,121.0)	(123.0)		(5,802.3)
DEC	(4,997.4)	2,151.1	(419.0)	68.5		(3,195.8)
JAN	(5,644.7)	2,740.5	317.6	13.3		(2,573.2)
FEB	(4,610.0)	(2,378.9)	397.5	484.9		(6,106.5)
MAR	6,842.2	(243.1)	1,232.1	91.3		7,922.6
APR	3,604.8	135.3	2,287.9	131.2		6,159.2
MAY	4,948.7	761.8	2,298.6	146.9		8,156.0
JUN	5,755.4	1,740.7	(376.4)	178.5		7,298.2
JUL	6,620.6	2,564.7	(381.6)	314.8		9,118.5
AUG	8,819.4	1,802.0	(385.4)	529.0		9,245.0
TOTAL	15,826.7	14,772.3	1,198.5	2,022.3		33,811.8

Source: Calculated by subtracting simulated consumer expenditures
without government intervention (Table 25) from projected
consumer expenditures for basic grains and grain products
under this alternative (Table 24). Appendix E.

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TABLE 11. Simulated Monthly Impact of Government Market Intervention
on Processors Expenditures for Grains
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	388.6			0.0		388.6
OCT	(254.1)			(8.9)		(273.0)
NOV	(1,299.5)			(58.8)		(1,358.3)
DEC	(1,254.6)			(8.0)		(1,262.6)
JAN	(1,417.1)			(17.3)		(1,434.4)
FEB	(1,157.3)			80.5		(1,076.8)
MAR	1,717.7			0.0		1,717.7
APR	905.0			8.2		913.2
MAY	1,242.4			11.1		1,253.5
JUN	1,444.9			14.8		1,459.7
JUL	1,662.1			44.2		1,706.3
AUG	2,013.2			88.3		2,101.5
TOTAL	3,973.2			162.1		4,135.4

Source: Calculated by subtracting simulated processor expenditures
without government intervention (Tab 27) from projected grain
expendit. by processors under this alternative (Table 26).
Appendix E.

TABLE 12. Simulated Total Net Monthly Impact of Government
Intervention in Domestic Grain Markets
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	1,157.3	1,312.7	301.8	118.5		2,890.3
OCT	(180.2)	2,248.9	(1,855.4)	75.3		288.5
NOV	1,678.4	446.4	(862.1)	(139.8)		1,123.0
DEC	1,398.0	1,632.0	(406.9)	78.2		2,761.3
JAN	(4,838.0)	1,272.6	200.4	42.7		(2,922.3)
FEB	(2,234.5)	(533.3)	198.2	296.0		(2,281.6)
MAR	5,525.2	17.7	1,011.6	136.8		6,691.2
APR	4,092.0	103.3	2,287.9	120.2		6,603.5
MAY	6,191.0	761.8	2,298.6	158.0		9,409.5
JUN	7,200.3	1,748.7	(376.4)	185.3		8,749.9
JUL	8,282.7	2,564.7	(381.6)	359.0		10,824.8
AUG	10,832.6	603.3	(385.4)	617.3		10,867.8
TOTAL	39,104.8	12,231.0	2,022.7	2,047.4		55,405.9

Source: Calculated by algebraic summation of the simulated
impacts on grain producers (Table 9), the simulated
impacts on final consumers (Table 10) and the simulated
impacts on grain processors (Table 11).

C. Simulated Economic Implications for IHMA

The objective in this section is to try a new marketing option for IHMA, in order to see what could be the the economic implications for the Institute if some changes in current support prices would have been introduced before the Marketing Plan for 1984-1985 was implemented.

In order to test out this new marketing option, a change in data supplied to the model was made. Support prices paid by IHMA to producers were modified.

The new suggested option is divided in two stages. In the first case, Alternative One, the support price level would be lowered from the current level as follows: corn 10 percent less, beans 15 percent less, rice staying the same and sorghum 15 percent less. And secondly, under Alternative Two, the support price level would be lowered from the current prices even more, i. e. corn 15 percent less, beans 15 percent less, rice remaining the same, and sorghum 20 percent less.

These reductions in price supports are proposed as alternatives to be tested after the wholesale market price behavior during the last seven years was analyzed. Such reduction in rate levels could be chosen according to the objectives or/and policies that the IHMA Board of Directors and the IHMA administration wish to accomplish.

Under Alternative One, the economic implications for carrying out the Marketing Plan for 1984-1985 but with modifications in support prices, (Table 4, Appendix F) are that (1) IHMA would have incured 23.3 million Lempiras to obtain the grain, (2) the Institute would have reported 31.1 million Lempiras as result of total sales; leaving a generated a gross margin of 7.8 million Lempiras, and finally, (4) the Institute would have reported net earning over direct cost of 2.2 million Lempiras and a net loss after all costs of 3.2 million Lempiras (see

Table 13).

Comparing this new result to the Marketing Plan for 1984-1985, the procurement cost would have been reduced by more than 20 percent, or 5.2 million Lempiras. Total sales remain the same at 31.1 million Lempiras. Gross margin is increased by 50 percent, 2.6 million Lempiras more. And finally, the Institute's projected net loss of 3.2 million Lempiras is less than that under the original Plan by 64 percent.

For Alternative Two, IHMA's economic implications carrying out the Marketing Plan for 1984-1985 but with modifications in support prices as shown in Table 4, Appendix G, are that (1) IHMA would have paid 22.2 million Lempiras to acquire the grains, (2) the Institute would have reported 31.1 million Lempiras for grain sales, leaving generated gross margin of 8.9 million Lempiras, and finally, (3) the Institute would have reported earnings over direct cost of 3.7 million Lempiras and a net loss after all costs of 2.1 million Lempiras, less than the original Plan by 42 percent (see Table 14).

Relating the results of this alternative to the original Plan for 1984-1985, the procurement cost would had been reduced by more than 2.9 million Lempiras, or represent 12 percent. Total sales of 31.1 million Lempiras remains the same. IHMA would had been able to increase gross profit by 2.9 million Lempiras, or 46 percent. And finally the Institute would have generated an increase in profit over direct cost of 2.9 million Lempiras, or 42 percent over the actual Marketing Plan for 1984-1985.

TABLE 13. Alternative One: IHMA's Economic Implications
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	TOTAL
SALES (35)	21,404.5	3,329.0	5,022.0	1,401.8	31,157.2
PURCHASES (9)	11,834.0	1,109.7	772.6	221.9	13,938.2
INVENT. (36)	(3,746.4)	(1,318.8)	(3,551.1)	(778.7)	(9,395.0)
GROSS MARGIN	5,824.1	900.5	698.3	401.2	7,824.0
CONDIT. (10)	2,344.6	127.3	182.1	102.3	2,756.3
RECEIV. (11)	606.9	22.6	22.2	23.1	674.8
TRANSF. (33)	395.0	31.9	54.8	21.0	502.7
STORAG. (32)	899.4	102.4	141.1	67.6	1,210.5
SALE (34)	351.5	20.6	34.5	24.3	430.9
TOTAL DIRECT COSTS	4,597.4	304.8	434.7	238.3	5,575.2
NET OVER DIRECT COSTS	1,226.7	595.7	263.6	162.9	2,248.8
ADM. & OVERHEAD COSTS *	—	—	—	—	5,503.4
NET LOSS	—	—	—	—	3,254.6

*Same figure as in 1983

Source: Tables 9, 10, 11, 32, 33, 34, 35, and 36 Appendix F and IHMA Financial Division.

TABLE 14. Alternative Two: IHMA's Economic Implications
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	TOTAL
SALES (35)	21,404.5	3,329.0	5,022.0	1,401.8	31,157.2
PURCHASES (9)	11,172.7	1,044.5	772.6	208.9	13,198.6
INVENT. (36)	(3,538.1)	(1,241.5)	(3,551.1)	(683.6)	(9,014.3)
GROSS MARGIN	6,693.7	1,043.0	698.3	509.3	8,944.3
CONDIT. (10)	2,344.6	127.3	182.1	102.3	2,756.3
RECEIV. (11)	606.9	22.6	22.2	23.1	674.8
TRANSF. (33)	395.0	31.9	54.8	21.0	502.7
STORAG. (32)	899.4	102.4	141.1	67.6	1,210.5
SALE (34)	351.5	20.6	34.5	24.3	430.9
TOTAL DIRECT COSTS	4,597.4	304.8	434.7	238.3	5,575.2
NET OVER DIRECT COSTS	2,096.3	738.2	263.6	271.0	3,369.1
ADM. & OVERHEAD COSTS *	–	–	–	–	5,503.4
NET LOSS	–	–	–	–	2,134.3

*Same figure as in 1983
Source: Tables 9, 10, 11, 32, 33, 34, 35, and 36 Appendix G and IHMA Financial
Division.

CHAPTER VII

SUMMARY AND CONCLUSION

The Honduran Agricultural Institute of Marketing (IHMA) is the Institution charged with responsabilities for increasing incomes of agricultural producers and assuring adequate supplies of basic foods at reasonable prices for the consumers.

Due to the social function that IHMA has to perform in the Honduran society, it has reported considerable capital losses every year since starting operations.

Neither IHMA's procurement program nor its sales plan ever have been carried completely as planned. Factors such as lack of funds, fixed price policy, failure to recognize the early market signals to buy at the right time, and inability to meet competition have combined to prevent IHMA from achieving its purchase and sales goals. High IHMA support prices in comparison to the market prices received by producers is another problem that the Institute has had to face.

As IHMA carries out its goals for each new agricultural year, it faces the same problems. There is lack of understanding and general disregard of the economic impact that IHMA imposes in the grain marketing system and uncertainty of the effects of its programs on the Honduras economy.

Based on simulated and actual data for 1984-1985, this research was directed to simulating and evaluating the economic impact generated by IHMA for producers, consumers and processors as well as upon the Institution itself. The IHMA Simulation Model for Testing Alternative Intervention Strategies developed by Phillips, Maxon and Hugo at Kansas State University was used.

The study simulated the estimated benefits and costs for producers, consumers and processors with and without IHMA intervention. Both results are

portrayed in Table 15. Producers seem to be benefitted substantially by IHMA's intervention in the grain marketing. According to the model consumers are benefitted even more with this intervention, because their food expenditures are reduced by 41.8 million Lempiras when simulated data is used in the Marketing Plan for 1984-85 and by 33.8 million Lempiras with actual data in the IHMA Operations for 1984-85. Processors appear to be benefit less from IHMA intervention; in the two cases their cost are reduced by 6.4 and 4.3 million Lempiras, respectively.

In Table 16 the simulated net economic impact generated by IHMA for each participant in the grain sector is shown. When the IHMA Operations 1984-85 was run using actual information, the economic impact for producers, consumers and processors was reduced considerably because IHMA was unable to reach the goals of its Marketing Plan for 1984-85. Simulated total impacts were reduced from 73.9 million Lempiras to 55.8 million Lempiras.

The economic implications for IHMA, under the four alternatives, carrying out its working plan 1984-1985, making all the reasonable changes according to the objectives of this study are shown in Table 17. The highest gross margin for IHMA was under Alternative Two (8.9 million Lempiras), and the lowest was under actual operations for 1984-85 (3.8 million Lempiras). The highest net margin over direct costs was reported for simulated data under the Marketing Plan for 1984-85 (4.8 million Lempiras). IHMA's simulated annual operating loss was highest when actual data for 1984-85 were used in the model (7.4 million Lempiras) and lowest under Alternative Two (2.1 million Lempiras). Losses are reduced because of lower purchasing prices for corn, beans and sorghum, so that the gross margin is more nearly adequate to cover operating costs. Consequently, the producers economic impact generated by IHMA is reduced by 3.6 million Lempiras (Table 16)

in comparison to that in the Marketing Plan for 1984-1985.

In general, the objectives fixed for IHMA by the Honduran government, including (1) subsidizing basic food costs for consumers and (2) providing high support prices to producers, are not compatible with profit generating targets. There is no way to have these policies without reporting losses. The welfare role implies a cost, not profits.

The IHMA Simulation Model appears to work well even assuming the social function that IHMA has to accomplish. The results obtained from this model show that is possible for IHMA to reduce its losses and perhaps to generate small profit over direct costs, an achievement which has been unusual for IHMA since its creation.

The Institute will be able to generate profits or reduce losses only if (1) its Board of Directors decide to make changes in the current IHMA policies, (2) if operational costs are reduced or/and (3) the administrative costs are cut down. IHMA should be able to report better results not only by increasing handling margins but also by reducing the costs involved in purchasing, handling, storing and selling grains.

If IHMA's Board of Directors wishes to affect positively consumers and producers welfare, a solution should be found. For instance, it may be recomended that the Institute top administrative unit should propose to the Honduran government a subsidy for the losses that IHMA generates every year. This subsidy should be viewed as the costs of the social welfare benefits that IHMA provides for the Honduran society.

The IHMA's Simulation Model used in this study is capable of showing that IHMA can reduce losses and/or increase benefits. However, the model is not a solution by itself. Policy makers have the final responsability to address the

current problems that IHMA is confronting.

TABLE 15. Simulated Benefits and Costs with and without
IHMA Intervention   (1,000 Lempiras)

	MARKETING PLAN FOR 1984-1985	IHMA OPERATIONS FOR 1984-1985
PRODUCERS BENEFITS		
With IHMA Intervention	113,9	112,5
Without IHMA Intervention	94,2	100,7
CONSUMERS COST		
With IHMA Intervention	260,2	260,2
Without IHMA Intervention	302,0	294,0
PROCESSORS COST		
With IHMA Intervention	28,8	28,8
Without IHMA Intervention	35,2	33,1

Source: Tables 7, 8, 24, 25, 26, and 27, Appendix D and E,

TABLE 16. Simulated Economic Impact Generated by IHMA
(1,000 Lempiras)

	MARKETING PLAN FOR 1984-1985	IHMA OPERATIONS FOR 1984-1985	ALTERNAT. ONE	ALTERNAT. TWO
ECONOMIC IMPACT				
On Producers	25,7	17,8	23.0	22,1
On Consumers	41.8	33,8	41.8	41,8
On Processors	6,3	4,1	6.3	6.3
TOTAL IMPACT	73.9	55,8	71.2	70,3

Source: Tables 37, 38, 39, and 40, Appendix D, E, F and G.

TABLE 17. Simulated Economic Implications for IHMA
(1,000 Lempiras)

	GROSS MARGIN	NET MARG. OVER DIRECT COST	ADMINIST.& OVERHEAD COST	NET LOSS
MARKETING PLAN				
FOR 1984-1985	5,184.7	4,757.4	5,503.4	5,075.7
IHMA OPERATIONS				
FOR 1984-1985	3,776.3	(1,877.7)	5,503.4	7,381.1
ALTERNATIVE ONE	7,824.0	2,248.8	5,503.4	3,254.6
ALTERNATIVE TWO	8,944.3	3,369.1	5,503.4	2,134.3

Source: TABLES 3, 8, 13 and 14.

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APPENDIX A

Areas, Yields and Production of Grain in Honduras
(Tables 1....4)

TABLE 1. HONDURAS: CORN
(1,000 METRIC TONS)

PERIOD NO.	YEAR	AREA HARVESTED	YIELD (KLGS)	PRODUCTION (1,000 MT)
1	1960	255	1030	262
2	1961	265	1040	277
3	1962	280	1070	299
4	1963	280	1080	302
5	1964	271	1020	277
6	1965	279	1020	286
7	1966	295	1070	316
8	1967	286	1170	335
9	1968	287	1230	353
10	1969	272	1250	339
11	1970	272	1270	346
12	1971	300	1170	351
13	1972	290	1000	290
14	1973	330	1060	350
15	1974	310	1080	335
16	1975	321	1040	334
17	1976	292	1050	308
18	1977	352	940	332
19	1978	380	1110	423
20	1979	348	960	333
21	1980	340	1156	393
22	1981	339	1437	487
23	1982	290	1328	385
24	1983	290	1438	417
25	1984	350	1486	520

Source: Foreign Agriculture Circular, USDA, May 1976
Feb. 1980 and April 1982.

TABLE 2. HONDURAS: Sorghum 1960-1984
(1,000 METRIC TONS)

PERIOD NO. YEAR	AREA HARVESTED	YIELD (KLGS)	PRODUCTION (1,000 MT)
1 1960	65	815	53
2 1961	64	813	52
3 1962	69	812	56
4 1963	73	808	59
5 1964	79	785	62
6 1965	60	750	45
7 1966	59	746	44
8 1967	38	1395	53
9 1968	36	1472	53
10 1969	33	1455	48
11 1970	33	1424	47
12 1971	33	1424	47
13 1972	55	636	35
14 1973	56	643	36
15 1974	57	667	38
16 1975	81	654	53
17 1976	53	792	42
18 1977	62	565	35
19 1978	74	689	51
20 1979	63	587	37
21 1980	62	758	47
22 1981	58	1017	59
23 1982	50	1020	51
24 1983	50	960	48
25 1984	48	1042	50

Source: United States Department of Agriculture,
Washington, D.C. Jan. 24 1985.

TABLE 3. HONDURAS: Rough Rice 1960-1984
(1,000 METRIC TONS)

	PERIOD NO. YEAR	AREA HARVESTED	YIELD (KLGS)	PRODUCTION (1,000 MT)
1	1960	13	1615	21
2	1961	13	1615	21
3	1962	15	1600	24
4	1963	14	1643	23
5	1964	14	1643	23
6	1965	8	1125	9
7	1966	5	1000	5
8	1967	7	1143	8
9	1968	6	1167	7
10	1969	5	1200	6
11	1970	5	1200	6
12	1971	11	1182	13
13	1972	11	1455	16
14	1973	14	2286	32
15	1974	13	2231	29
16	1975	18	1611	29
17	1976	21	2714	57
18	1977	19	2158	41
19	1978	15	2733	41
20	1979	19	2684	51
21	1980	20	2850	57
22	1981	21	2810	59
23	1982	24	1833	44
24	1983	24	2125	51
25	1984	24	2958	71

Source: Foreign Agriculture Circular, USDA, May 1976,
Feb. 1980, April 1982 and Jan. 1985.

TABLE 4. HONDURAS: Beans 1960-1984
(1,000 METRIC TONS)

PERIOD NO. YEAR	AREA HARVESTED	YIELD (KLGS)	PRODUCTION (1,000 MT)
1 1960	81	430	35
2 1961	89	440	39
3 1962	71	630	45
4 1963	77	650	50
5 1964	87	670	58
6 1965	63	680	43
7 1966	72	690	50
8 1967	79	720	57
9 1968	85	740	63
10 1969	73	750	55
11 1970	73	750	55
12 1971	75	730	55
13 1972	60	580	35
14 1973	60	600	36
15 1974	90	610	55
16 1975	80	540	43
17 1976	86	510	44
18 1977	77	300	30
19 1978	78	564	44
20 1979	84	452	38
21 1980	68	529	36
22 1981	76	586	43
23 1982	72	625	45
24 1983	70	629	44
25 1984	70	629	44

Source: Foreign Agriculture Circular, USDA, May 1976,
February 1980, April 1982 and Jan. 1985.

APPENDIX B

IHMA: Functions and Grain Storage Facilities

HONDURAN INSTITUTE OF AGRICULTURAL MARKETING

The functions of the Honduran Institute of Agricultural Marketing functions are as follows:

1. To adopt those measures that are needed to stabilize the basic grains prices in the national market. The purpose of this function is to create incentives to producers and an adequate supply to consumers.

2. To promote and fulfill those marketing activities of other agricultural products, according to the resources available. And also, to those dispositions that the Board of Directors may establish.

3. To facilitate orderly marketing of the basic grains in the internal market, and when necessary for other agricultural products.

4. To establish the support prices for purchasing of basic grains from producers.

5. To buy and sell basic grains and to restrict or control exports or imports when necessary, in order to stabilize prices and insure an adequate supply to consumers.

6. To build, obtain, rent and operate storage facilities; to mantain quality, process and distribute basic grains; and to stabilize other agricultural commodities when the Board of Directors establishes this need.

7. To provide storage and processing services to individuals, preferably to producers, establishing limits and conditions in order that the services and operations become effective.

8. To issue deposit certificates and bonds.

9. To negotiate loans inside or outside of the country.

10. To compile, classify, produce and make public directly, or in collaboration with others institutions, information about production, prices and marketing of agricultural products.

11. To contribute directly, or in collaboration with other institutions to the improvement of the marketing system for agricultural products, particularly basic grains.

12. To provide technical assistance and training in the field of agricultural marketing to producers and private and public institutions.

13. To participate in expositions and other events which contribute to improve the marketing of agricultural products.

14. To provide marketing advice to the private sector, in order to improve marketing efficiency.

15. To adopt other measures which may be considered necessary by IHMA.

THE IHMA's SUPERIOR ADMINISTRATION

The IHMA's superior administration, the Board of Directors, is made up of the following:

1. The Secretary of the Secretariat of Natural Resources.

2. The Secretary of the Secretariat of Economy.

3. The Secretary of the Secretariat of the Treasury.

4. The Secretary of the Secretariat of Planning.

5. The Director of the National Agrarian Institute.

6. A Representative from the Private Sector, and

7. A Representative from the Association of Peasants.

The Board of Directors has the following functions:

1. To determine and manage the policies of the Institute and also to carry out the direction of it.

2. To issue regulations that are needed for the operation of the Institute.

3. To approve contracts and agreements according to their nature and value.

4. To approve the Institute's annual program of work.

5. To understand, evaluate, and approve the annual report of the manager, the Institute's budget, its financial status and the development of the budget by program.

6. To establish the support prices that the Institute will pay to producers of basic grains.

7. And to exercise other functions that are necessary and in agreement with the national law No. 592 and the founding regulations of the organization.

IHMA: GRAIN STORAGE FACILITIES RECIEVED BY IHMA FROM BANAFOM IN 1978.
(METRIC TONS)

REGION No.	ELEVATOR BY REGION	CAPACITY
1	SUR	996
	Granero Choluteca*	705
	Granero El Triunfo***	291
2	CENTRO-OCCIDENTAL	1,618
	Granero Comayagua*	1,618
3.	NORTE	29,532
	Terminal San Pedro Sula*	24,455
	Granero Las Palmas***	2,727
	Granero Puerto Cortes*	1,173
	Granero Cuyamel***	227
	Granero Quimistan***	291
	Granero Tela**	659
4.	LITORAL ATLANTICO	3,645
	Granero Olanchito*	491
	Granero El Negrito***	291
	Granero Tocoa**	2,863
5.	NOR-ORIENTAL	731
	Granero Juticalpa*	491
	Granero Catacamas*	240
6.	CENTRO-ORIENTAL	29,946
	Terminal Kennedy*	19,910
	Bodega Cerro de Hula*	9,091
	Granero Danli*	654
	Granero El Porvenir*	291
7.	OCCIDENTAL	291
	Granero La Entrada*	291

TOTAL 66,759

* Elevator in operation at 1983-1984
** Inactive Elevator at 1983-1984
*** Elevator close since 1978

Source: IHMA-CIES

IHMA: CURRENT GRAIN STORAGE CAPACITY, 1984.
(METRIC TONS)

REGION No.	ELEVATOR BY REGION	CAPACITY
1.	SUR Granero Choluteca	$\frac{714}{714}$
2.	CENTRO-OCCIDENTAL Granero Comayagua	$\frac{5,709}{5,709}$
3.	NORTE Terminal San Pedro Sula Granero Las Palmas Granero Puerto Cortes Granero Tela	30,618 27,936 1,955 682 45
4.	LITORAL-ATLANTICO Granero Olanchito Granero Tocoa	$\frac{3,373}{473}$ 2,900
5.	NOR-ORIENTAL Granero Juticalpa Granero Catacamas	$\frac{723}{473}$ 250
6.	CENTRO-ORIENTAL Terminal Kennedy Bodega Cerro de Hula Granero Danli Granero El Porvenir	32,309 22,255 9,091 664 299
7.	OCCIDENTAL Granero La Entrada	$\frac{299}{299}$

TOTAL 73,745

Source: IHMA-CIES

APPENDIX C

Operational and Fiscal Data, IHMA, 1978-1984
(Tables 1....15 and Z)

TABLE 1. HONDURAN INSTITUTE OF AGRICULTURAL MARKETING: DONATIONS
(1000 LEMPIRAS)

	1979	1980	1981	1982	1983	1984[a]	TOTAL
PL-480 WHEAT	3,863.1	3,969.1	0.0	0.0	0.0	0.0	7,812.2
AID 522TO34	0.0	0.0	37.3	0.0	0.0	0.0	37.3
EEC WHEAT	1,891.0	0.0	0.0	0.0	973.6	0.0	2,864.6
EEC RICE	922.4	0.0	0.0	0.0	0.0	0.0	922.4
FRANCE WHEAT	0.0	0.0	343.4	622.5	0.0	0.0	965.9
ARGENTINA WHEAT	0.0	3,157.8	0.0	0.0	0.0	1,541.7	4,699.5
ARGENTINA MAIZ	0.0	0.0	0.0	1,255.0	0.0	0.0	1,255.0
TOTAL	6,656.5	7,126.9	380.7	1,877.5	973.6	1,541.7	18,556.9

Source: IHMA Finance Division.

[a]June 30, 1984.

TABLE 2. IHMA: OPERATIONAL LOSSES
(1000 LEMPIRAS)

YEAR	AMOUNT
1978	387.9
1979	1,302.4
1980	617.3
1981	2,231.6
1982	3,609.5
1983	4,415.4
1984*	3,299.0
TOTAL	15,863.1

Source: IHMA Finance Division.

*June 30, 1984.

*

TABLE 3. IHMA: NET WORKING CAPITAL
(1000 LEMPIRAS)

YEAR	AMOUNT
1978	6,095.8
1979	20,259.8
1980	27,063.9
1981	24,449.9
1982	24,469.8
1983	20,025.4
1984*	15,514.7

Source IHMA Finance Division

*June 30, 1984.

TABLE 4. HONDURAS BASIC GRAINS NET MARKETABLE PRODUCTION (1000 MT)

AGR. YEAR	CORN	BEANS	RICE	SORGHUM
1978–1979	388.0	33.5	21.0	46.4
1979–1980	219.1	25.6	25.5	32.8
1980–1981	273.6	45.3	29.5	45.9
1981–1982	356.1	32.3	29.6	51.5
1982–1983	266.6	27.8	19.3	28.9

Source: IHMA Centro de Informacion y Estadistica (CIES).

TABLE 5. IHMA: VOLUME OF PURCHASES AS PERCENTAGE OF NET MARKETABLE PRODUCTION (1000 MT)

AGR. YEAR	CORN	BEANS	RICE	SORGHUM
1978–1979	2.80	2.74	0.01	1.80
1979–1980	0.94	3.54	12.27	0.13
1980–1981	6.75	11.43	8.38	0.66
1981–1982	11.08	28.74	3.48	5.59
1982–1983	13.53	10.96	1.52	6.16

Source: IHMA Centro de Informacion y Estadistica (CIES).

TABLE 6. IHMA: PLANNED AND ACHIEVED CORN PURCHASING
PROGRAM (1000 MT)

AGR. YEAR	PLANNED	ACHIEVED	ACHIEVED PERCENTAGE
1978–1979	48.9	10.9	22.3
1979–1980	27.7	2.1	7.6
1980–1981	36.4	18.5	50.8
1981–1982	36.4	39.4	108.2
1982–1983	40.9	36.1	88.3

Source: IHMA – CIES.

TABLE 7. IHMA: PLANNED AND ACHIEVED BEAN PURCASING
PROGRAM (1000 MT)

AGR. YEAR	PLANNED	ACHIEVED	ACHIEVED PERCENTAGE
1978–1979	4.3	0.9	20.9
1979–1980	1.2	0.9	75.0
1980–1981	2.3	3.1	134.8
1981–1982	2.7	9.3	344.4
1982–1983	2.7	3.0	111.1

Source: IHMA–CIES.

TABLE 8. IHMA: PLANNED AND ACHIEVED RICE PURCHASING
PROGRAM   (1000 MT)

AGR. YEAR	PLANNED	ACHIEVED	ACHIEVED PERCENTAGE
1978-1979	10.0	0.002	0.0002
1979-1980	2.0	3.1	155.0
1980-1981	2.0	2.4	120.0
1981-1982	2.7	1.0	37.0
1982-1983	2.7	0.3	11.1

Source: IHMA-CIES.

TABLE 9. IHMA: PLANNED AND ACHIEVED SORGHUM PURCHASING
PROGRAM   (1000 MT)

AGR. YEAR	PLANNED	ACHIEVED	ACHIEVED PERCENTAGE
1978-1979	2.8	0.8	28.6
1979-1980	1.4	0.04	2.9
1980-1981	2.3	0.3	13.0
1981-1982	1.4	2.9	207.1
1982-1983	2.3	1.8	78.3

Source: IHMA-CIES.

TABLE 10. HONDURAS: IMPORTS OF GRAIN MADE BY IHMA
(1000 MT)

AGR. YEAR	CORN	BEANS	RICE	SORGHUM
1978-1979	0.0	0.0	1.4	0.0
1979-1980	15.9	0.0	0.0	0.0
1980-1981	4.7	0.5	0.0	0.0
1981-1982	0.0	0.0	0.0	0.0
1982-1983	14.8	0.0	2.5	0.0

Source: Division of Marketing, IHMA.

TABLE 11. HONDURAS: EXPORTS OF GRAINS MADE BY IHMA
(1000 MT)

AGR. YEAR	CORN	BEANS	RICE	SORGHUM
1978	0.0	0.0	0.0	0.0
1979	0.0	0.0	0.0	0.0
1980	0.0	0.0	0.0	0.0
1981	4.5	6.7	0.0	0.0
1982	13.6	2.4	0.0	0.0
1983	0.0	0.3	0.0	0.0

Source: Division of Marketing, IHMA.

TABLE 12. HONDURAS: CORN WHOLESALE MARKET PRICES
(LEMPIRAS/QUINTAL)

AGR. YEAR	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	AVERAGE
1978-1979	15.75	11.60	11.22	–	–	13.19	13.45	13.99	14.31	15.05	15.76	16.39	14.07
1979-1980	17.55	15.96	14.01	14.86	–	–	21.81	22.83	21.85	21.15	22.95	25.28	19.83
1980-1981	24.31	17.69	15.99	–	17.47	18.25	18.67	19.23	18.98	18.17	19.23	19.51	18.86
1981-1982	20.41	18.74	16.60	16.13	15.55	15.85	18.38	18.51	17.73	17.91	18.84	19.35	17.83
1982-1983	18.97	16.06	14.30	15.03	16.55	17.85	19.53	19.80	19.19	20.55	22.74	28.63	19.10
1983-1984	23.77	15.89	14.76	14.89	14.61	14.82	14.56	15.35	14.55	14.86	15.73	15.42	15.77
1984-1985	14.92	14.03	12.60	11.50	11.93	–	–	–	–	–	–	–	13.00

Source: IHMA-CIES.

TABLE 13, HONDURAS: BEANS WHOLESALE MARKET PRICES
(LEMPIRAS/QUINTAL)

AGR. YEAR	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	AVERAGE
1978-1979	24.47	25.96	26.64	-	-	29.25	29.06	30.30	31.92	32.62	33.12	32.49	29.88
1979-1980	31.09	42.82	55.93	56.97	-	-	65.11	75.33	83.24	91.86	102.94	68.26	67.36
1980-1981	61.42	73.13	83.48	-	63.56	63.13	68.21	62.28	71.03	66.48	65.45	49.52	66.15
1981-1982	50.81	54.58	51.16	43.73	47.36	48.34	40.17	39.90	41.49	45.22	45.75	38.64	45.60
1982-1983	34.70	33.80	38.50	39.03	37.65	36.88	33.80	36.15	44.56	50.57	53.54	50.44	40.80
1983-1984	41.14	45.84	50.30	44.48	45.14	44.59	43.67	47.11	51.75	51.71	52.77	47.60	47.18
1984-1985	40.53	39.43	40.27	44.30	46.77	-	-	-	-	-	-	-	42.22

Source: IBRA-CUES.

TABLE 14. HONDURAS: RICE WHOLESALE MARKET PRICES
(LEMPIRAS/QUINTAL)

AGR. YEAR	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	AVERAGE
1978-1979	55.40	55.70	57.51	-	-	55.46	55.36	56.05	55.99	54.59	56.89	57.57	56.05
1979-1980	57.18	58.03	60.46	60.15	-	-	60.11	60.04	60.41	60.85	60.57	59.54	59.73
1980-1981	58.85	59.98	61.44	-	63.48	61.62	62.11	62.43	63.08	65.27	65.68	66.29	62.75
1981-1982	71.03	71.55	72.00	70.98	70.06	70.48	69.60	69.84	68.60	67.18	69.67	70.57	70.13
1982-1983	69.76	65.99	65.36	67.61	66.32	66.65	67.79	67.31	68.17	69.33	70.74	69.47	67.88
1983-1984	67.83	67.94	66.90	65.30	63.19	64.45	66.11	63.40	60.89	60.88	61.92	62.76	64.30
1984-1985	61.06	62.61	62.78	61.98	60.38	-	-	-	-	-	-	-	61.76

Source: IHMA-CIES.

TABLE 15. HONDURAS: SORGHUM WHOLESALE MARKET PRICES
(LEMPIRAS/QUINTAL)

AGR. YEAR	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	AVERAGE
1978-1979	14,44	13,66	11,11	-	-	13,68	12,53	13,14	13,59	13,58	14,11	14,55	13,44
1979-1980	15,42	16,31	17,91	19,31	-	-	17,56	17,85	17,78	18,61	19,63	22,78	18,32
1980-1981	24,00	23,13	23,49	-	16,64	19,19	15,78	15,59	15,72	18,65	16,95	17,23	18,76
1981-1982	18,07	18,08	17,82	19,13	19,60	17,72	14,03	14,34	14,48	15,54	16,07	18,17	16,92
1982-1983	18,46	19,30	21,57	15,34	17,59	18,46	19,33	20,25	21,98	23,21	24,00	21,00	20,04
1983-1984	33,00	-	34,63	-	15,08	14,16	15,82	14,30	13,54	13,68	15,00	10,88	18,01
1984-1985	13,80	13,94	13,79	12,55	11,50	-	-	-	-	-	-	-	13,12

Source: IHMA-CIES.

TABLE I. Coefficients of Price Flexibility used to
Calculate the Government Impact on Grain
Marketing

% Change Quantity	CORN	BEANS	RICE	SORGHUM
0	-5.0000	-6.2500	-3.5000	-4.0000
1	-5.0000	-6.2500	-3.5000	-4.0000
2	-5.0000	-6.2500	-3.5000	-4.0000
3	-5.0000	-6.2500	-3.5000	-4.0000
4	-5.0000	-6.2500	-3.5000	-4.0000
5	-5.0000	-6.2500	-3.5000	-4.0000
6	-4.8333	-6.0417	-3.3833	-3.8667
7	-4.6667	-5.8333	-3.2667	-3.7333
8	-4.5000	-5.6250	-3.1500	-3.6000
9	-4.3333	-5.4167	-3.0333	-3.4667
10	-4.1667	-5.2083	-2.9167	-3.3333
11	-4.0000	-5.0000	-2.8000	-3.2000
12	-3.8333	-4.7917	-2.6833	-3.0667
13	-3.6667	-4.5833	-2.5667	-2.9333
14	-3.5000	-4.3750	-2.4500	-2.8000
15	-3.3482	-4.1853	-2.3437	-2.6786
16	-3.2500	-4.0625	-2.2750	-2.6000
17	-3.1666	-3.9583	-2.2166	-2.5333
18	-3.0833	-3.8541	-2.1583	-2.4666
19	-3.0000	-3.7500	-2.1000	-2.4000
20	-2.9166	-3.6458	-2.0416	-2.3333
21	-2.8333	-3.5416	-1.9833	-2.2666
22	-2.7500	-3.4375	-1.9250	-2.2000
23	-2.6666	-3.3333	-1.8666	-2.1333
24	-2.5833	-3.2291	-1.8083	-2.0666
25	-2.5000	-3.1250	-1.7500	-2.0000
26	-2.4500	-3.0625	-1.7150	-1.9600
27	-2.4000	-3.0000	-1.6800	-1.9200
28	-2.3500	-2.9375	-1.6450	-1.8800
29	-2.3000	-2.8750	-1.6100	-1.8400
30	-2.2500	-2.8125	-1.5750	-1.8000
31	-2.2000	-2.7500	-1.5400	-1.7600
32	-2.1500	-2.6875	-1.5050	-1.7200
33	-2.1000	-2.6250	-1.4700	-1.6800
34	-2.0500	-2.5625	-1.4250	-1.6400
35	-2.0000	-2.5000	-1.4000	-1.6000
36	-1.9667	-2.4583	-1.3767	-1.5733
37	-1.9333	-2.4167	-1.3533	-1.5467
38	-1.9000	-2.3750	-1.3300	-1.5200
39	-1.8667	-2.3333	-1.3067	-1.4933
40	-1.8333	-2.2917	-1.2833	-1.4667
41	-1.8000	-2.2500	-1.2600	-1.4400
42	-1.7667	-2.2083	-1.2367	-1.4133
43	-1.7333	-2.1667	-1.2133	-1.3867

```
44   -1.7000  -2.1250  -1.1980  -1.3600
45   -1.6667  -2.0833  -1.1667  -1.3333
46   -1.6458  -2.0573  -1.1521  -1.3167
47   -1.6250  -2.0313  -1.1375  -1.3000
48   -1.6042  -2.0052  -1.1229  -1.2833
49   -1.5834  -1.9792  -1.1083  -1.2667
50   -1.5625  -1.9532  -1.0938  -1.2500
51   -1.5417  -1.9271  -1.0792  -1.2334
52   -1.5209  -1.9011  -1.0646  -1.2167
53   -1.5000  -1.8750  -1.0500  -1.2000
54   -1.4792  -1.8490  -1.0354  -1.1834
55   -1.4584  -1.8230  -1.0209  -1.1667
56   -1.4375  -1.7969  -1.0063  -1.1500
57   -1.4167  -1.7709  -0.9917  -1.1334
58   -1.3959  -1.7449  -0.9771  -1.1167
59   -1.3750  -1.7188  -0.9625  -1.1000
60   -1.3542  -1.6928  -0.9479  -1.0834
61   -1.3333  -1.6666  -0.9333  -1.0666
62   -1.3125  -1.6406  -0.9188  -1.0500
63   -1.2917  -1.6146  -0.9042  -1.0334
64   -1.2719  -1.5899  -0.8903  -1.0175
65   -1.2615  -1.5769  -0.8831  -1.0092
66   -1.2500  -1.5625  -0.8750  -1.0000
```

Source: Based on direct price demand elasticities,
        -0.2 for corn, -0.16 for beans, -0.29 for
        rice and -0.25 for sorghum.

APPENDIX D

Simulated Output, IHMA Marketing Plan for 1984-85
(Tables 1....40)

TABLE 1. Projected Monthly Volumes of Basic Grains Harvested.
(1000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	585.7	58.8	240.9	15.0	214.2	1114.5
OCT	878.6	58.8	562.2	15.0	128.0	1642.4
NOV	2050.0	58.8	481.5	15.0	183.8	2789.1
DEC	2342.8	29.4	481.5	104.7	178.0	3056.5
JAN	378.9	90.8	13.3	241.2	92.7	816.8
FEB	757.8	90.8	31.0	241.2	89.4	1210.1
MAR	568.3	75.6	22.1	241.2	75.4	982.7
APR	189.4	45.4	22.1	80.4	183.2	520.6
MAY	0.0	0.0	0.0	0.0	87.2	87.2
JUN	0.0	0.0	0.0	0.0	181.9	181.9
JUL	0.0	0.0	0.0	0.0	187.8	187.8
AUG	0.0	88.2	0.0	0.0	118.5	206.7
TOTAL	7751.4	596.5	1694.8	953.5	1640.1	12636.3

Source: Percentages from Work Table 1 applied to the projected
annual harvest for this alternative, after adjustments for
harvesting losses and excess moisture and foreign material
content. The current adjustment factors for these losses
are 0.8835 (.954.93) for corn, 0.893 (.954.94) for beans.

TABLE 2. Projected Monthly Volumes of Grain Sales Off Farms
(1000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	425.8	53.3	233.9	4.5		717.5
OCT	694.9	48.2	558.7	4.5		1306.3
NOV	1793.2	48.2	398.8	4.5		2244.6
DEC	2072.0	20.1	398.9	76.0		2566.9
JAN	237.2	83.9	12.9	182.2		516.2
FEB	591.7	87.7	30.8	182.2		892.3
MAR	414.5	72.5	22.0	182.2		691.2
APR	60.8	42.3	22.0	58.5		182.8
MAY	-124.8	-18.4	0.0	-3.6		-138.7
JUN	-128.5	-7.9	-3.4	-3.6		-143.4
JUL	-143.7	-7.9	-7.8	-3.6		-163.8
AUG	-147.4	80.3	-5.6	-4.9		-77.7
TOTAL	5744.9	510.2	1661.3	678.7	0.0	8595.0

Source: Projected monthly harvest (Table 1) minus the sum of
farm family use (Table 15A), farm livestock use (Table
15B) and seed use (Table 16).

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TABLE 3. Projected Monthly Volume of Government Grain Purchases
(1000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	1.9	4.8	11.8			18.5
OCT	187.0	22.8	16.2	0.0		226.0
NOV	425.7	5.2	12.4	4.9		448.2
DEC	258.2	0.8	23.5	4.9		279.4
JAN	49.8	11.7	5.8	10.2		76.7
FEB	35.8	27.8	0.0	25.6		89.2
MAR	0.0	8.6	0.0	14.1		14.7
APR		0.4				0.4
MAY						
JUN						
JUL						
AUG						
TOTAL	949.6	74.1	69.7	59.7		1153.1

Source: Computed for this alternative based on IHMA's purchases
and sales for 1981/82 through 1983/84 together with the
volume and price data for this alternative (Tables 2 and
4).

TABLE 4. Projected Monthly Grain Prices of Government
Purchases   (Lempiras per Quintal)

	CORN	BEANS	RICE	SORGHUM
SEP	15.42	42.65	0.00	
OCT	15.41	42.72	23.39	0.00
NOV	15.39	42.75	23.40	15.10
DEC	15.42	42.39	23.78	15.20
JAN	15.34	42.68	24.10	14.96
FEB	15.39	42.83	23.66	14.69
MAR	0.00	43.25	0.00	14.35
APR				
MAY				
JUN				
JUL				
AUG				
AVERAGE	15.40	42.53	23.66	14.86

Source: Specified as initial information under the assumptions
for this alternative. Modal prices based on existing
tolerance tables and anticipated geographic delivery
patterns.

TABLE 5. Projected Average Monthly Market Prices Received
         by Farmers   (Lempiras per Quintal)

	CORN	BEANS	PADDY RICE	SORGHUM
SEP	11.24	27.33	21.59	10.98
OCT	8.31	25.41	21.52	10.99
NOV	7.56	30.05	21.36	11.21
DEC	8.07	28.86	21.70	10.29
JAN	8.75	28.66	20.31	11.70
FEB	9.97	29.52	20.23	12.36
MAR	10.45	29.91	20.39	10.23
APR	10.83	31.98	20.13	11.00
MAY	10.31	36.44	20.30	11.56
JUN	10.80	35.85	20.35	12.35
JUL	11.90	36.82	20.08	12.63
AUG	11.83	31.17	20.66	12.68
AVERAGE	9.52	31.06	21.41	11.52

Source: Based on average historical prices received by farmers for
         1978/79 through 1983/84, with projections based on long-
         term price trends. Projections adjusted for this
         alternative based on the price flexibility of demand
         coefficients shown in Table 2.

TABLE 6. Simulated Average Monthly Market Prices Received by
         Farmers without Government Intervention
                  (Lempiras per Quintal)

	CORN	BEANS	RICE	SORGHUM
SEP	18.25	38.39	25.78	10.98
OCT	5.23	7.75	23.53	10.99
NOV	3.14	18.64	19.63	4.89
DEC	4.83	35.85	17.76	8.36
JAN	4.97	15.33	19.21	9.72
FEB	9.16	6.13	28.11	7.99
MAR	13.95	30.80	29.49	8.41
APR	17.84	38.77	30.47	12.84
MAY	ERR	ERR	ERR	ERR
JUN	ERR	ERR	ERR	ERR
JUL	ERR	ERR	ERR	ERR
AUG	ERR	42.78	ERR	ERR
AVERAGE	10.79	29.07	26.31	12.50

Source: Calculated as follows: Net government purchases
         volume ((Table 3 - Table 20) - Total volume harvested
         (Table 1) ÷ (1.0 + price flexibility coefficient
         (Table 2) ÷ Projected monthly market prices (Table 5).
         Note: "ERR" in the table indicates no quantity
         harvested during the month.

TABLE 7. Projected Monthly Farm Income from Grain Sales
(1,200 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	4,795.3	1,523.4	4,796.3	49.1		11,178.0
OCT	7,101.3	1,619.9	12,055.6	49.1		20,826.0
NOV	16,885.3	1,515.1	8,552.0	69.2		27,021.6
DEC	18,559.3	589.9	8,786.2	805.6		28,661.0
JAN	2,398.7	2,569.1	284.0	2,164.8		7,416.7
FEB	6,852.9	2,957.9	623.6	2,310.7		11,985.0
MAR	4,329.8	2,177.5	448.9	1,921.0		8,877.2
APR	649.8	1,339.2	443.2	643.5		3,075.7
MAY	(1,085.7)	(377.8)	0.0	(41.3)		(1,704.7)
JUN	(1,388.3)	(284.8)	(68.2)	(44.8)		(1,785.3)
JUL	(1,705.0)	(292.5)	(157.1)	(45.8)		(2,203.7)
AUG	(1,743.6)	2,581.8	(115.5)	(62.6)		580.2
TOTAL	54,686.0	15,844.7	35,568.9	7,828.0		113,919.7

Source: Calculated by means of multiplication of prices and quantities
as follows: Sales to government (Table 3 + Table 4) + sales
to private sector ((Table 2 - Table 3) + Table5).

TABLE 8. Simulated Monthly Farm Income from Grain Sales without
Government Intervention (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	7,771.3	2,045.2	6,030.7	49.1		15,896.4
OCT	3,634.3	373.7	13,146.1	49.1		17,203.2
NOV	5,630.5	898.9	7,827.8	21.9		14,379.1
DEC	10,007.8	719.4	7,084.3	635.2		18,446.8
JAN	1,179.1	1,286.5	247.9	1,771.8		4,484.4
FEB	5,419.7	537.3	866.5	1,455.4		8,278.9
MAR	5,781.6	2,233.9	649.3	1,531.9		10,196.8
APR	1,070.9	1,638.9	671.0	751.1		4,131.9
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	3,433.6	0.0	0.0		3,433.6
TOTAL	40,495.3	13,167.5	36,523.6	6,264.7		96,451.1

Source: Calculated by means of multiplication of simulated prices
and quantities, e.g., (Table 6 + Table 2).

TABLE 9. Projection of Monthly Cost of Government Grain Purchases.
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	29.3	204.7	0.0	0.0		234.0
OCT	2,681.7	974.0	378.9	0.0		4,234.6
NOV	6,551.5	222.3	290.2	74.0		7,138.0
DEC	3,858.1	33.9	558.8	74.5		4,525.3
JAN	751.7	499.4	139.8	152.6		1,543.4
FEB	551.0	1,190.7	0.0	376.1		2,117.7
MAR	0.0	26.0	0.0	202.3		228.3
APR	0.0	0.0	0.0	0.0		0.0
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	14,623.2	3,150.9	1,367.7	879.5		20,021.3

Source: Calculated by means of multiplication of prices and quantities, e.g., (Table 4 ∗ Table 3).

TABLE 10. Projection of Monthly Expense for Conditioning Government Grain (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	3.7	8.2	30.6	0.0		42.5
OCT	366.3	39.2	42.0	0.0		447.5
NOV	833.9	8.9	32.1	7.8		882.7
DEC	490.1	1.4	60.9	7.8		560.2
JAN	96.0	20.1	15.0	16.2		147.3
FEB	70.1	47.8	0.0	40.6		158.5
MAR	0.0	1.0	0.0	22.4		23.4
APR	0.0	0.7	0.0	0.0		0.7
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	1,860.1	127.3	180.6	94.8		2,262.8

Source: Calculated by means of multiplication of unit direct costs for cleaning, drying and conditioning (including loss of weight) by projected quantities purchased under this alternative (Table 3).

TABLE 11. Projection of Monthly Expense of Procuring and Receiving Government Grain (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.6	1.5	3.6	0.0		5.7
OCT	56.8	6.9	4.9	0.0		68.6
NOV	123.4	1.6	3.8	1.5		136.3
DEC	76.1	0.2	7.1	1.5		84.9
JAN	14.9	3.6	1.8	3.1		23.4
FEB	10.9	8.5	0.0	7.8		27.2
MAR	0.0	0.2	0.0	4.3		4.5
APR	0.0	0.1	0.0	0.0		0.1
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	288.7	22.6	21.2	18.2		350.7

Source: Calculated by means of multiplication of unit direct costs for buying and receiving government grain into storage by projected quantities purchased under this alternative (Table 3).

SUMMARY TABLE 11S. Monthly Cost of Sales of Government-Owned Grain (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	33.6	214.4	34.2	0.0		282.2
OCT	3,304.8	1,020.1	425.8	0.0		4,750.7
NOV	7,514.8	232.8	326.1	83.3		8,157.0
DEC	4,424.3	35.5	626.8	83.8		5,170.4
JAN	862.6	523.1	156.6	171.9		1,714.1
FEB	632.0	1,247.0	0.0	424.5		2,303.4
MAR	0.0	27.2	0.0	229.0		256.2
APR	0.0	0.0	0.0	0.0		0.0
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	16,772.0	3,300.8	1,569.5	992.5		22,634.8

Source: Calculated by direct addition of Table 9 + Table10 + Table 11 for this alternative.

TABLE 12. Projected Monthly Volume of Grain Imports
(1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.0	0.0	0.0	0.0	214.2	214.2
OCT	0.0	0.0	0.0	0.0	128.0	128.0
NOV	0.0	0.0	0.0	0.0	183.8	183.8
DEC	0.0	37.1	0.0	0.0	178.0	215.1
JAN	0.0	0.0	0.0	0.0	92.7	92.7
FEB	0.0	0.0	0.0	0.0	89.4	89.4
MAR	0.0	0.0	0.0	0.0	75.4	75.4
APR	0.0	7.6	0.0	0.0	183.2	190.8
MAY	0.0	74.6	0.0	0.0	87.2	161.8
JUN	0.0	72.2	0.0	0.0	181.9	254.1
JUL	0.0	72.2	0.0	0.0	107.8	179.9
AUG	0.0	0.0	0.0	0.0	118.5	118.5
TOTAL	0.0	263.6	0.0	0.4	1,640.1	1,903.7

Source: Calculated for this alternative as residual of total volume
of demand (table 13C + Table 15A + Table 15B + Table 16 +
Table 17 + Increases in ending inventory) minus total volume
of supply from other sources (Table 1 + Decreases in ending
inventory). If the residual is minus, then the absolute
value represents exports (Table 19), and the import figure
in Table 12 is set equal to zero.

TABLE 13A. Projected Monthly Volume of Grains for Human Consumption
(Urban)   (1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	161.5	26.1	80.8	2.8	54.3	325.4
OCT	161.5	26.1	80.8	2.8	54.3	325.4
NOV	161.5	26.1	80.8	2.8	54.3	325.4
DEC	161.5	26.1	80.8	2.8	54.3	325.4
JAN	161.5	26.1	80.8	2.8	54.3	325.4
FEB	161.5	26.1	80.8	2.8	54.3	325.4
MAR	161.5	26.1	80.8	2.8	54.3	325.4
APR	161.5	26.1	80.8	2.8	54.3	325.4
MAY	161.5	26.1	80.8	2.8	54.3	325.4
JUN	161.5	26.1	80.8	2.8	54.3	325.4
JUL	161.5	26.1	80.8	2.8	54.3	325.4
AUG	161.5	26.1	80.8	2.8	54.3	325.4
TOTAL	1,938.3	312.7	969.3	33.0	651.6	3,904.9

Source: Application of the projected national urban population to
the appropriate annual per capita consumption rates;
distributed uniformly throughout the year. Current
annual per capita rates are 115.7 pounds of corn, 18
of sorghum and 37.51 pounds of wheat. Milled rice
converted to equivalent weight of rough rice on basis
of the coefficient of 1.9385.

TABLE 13B. Projected Monthly Volume of Grains for Human Consumption
(Rural)   (1,000 Lespiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	397.8	44.4	50.0	46.5	82.4	621.1
OCT	397.8	44.4	50.0	46.5	82.4	621.1
NOV	397.8	44.4	50.0	46.5	82.4	621.1
DEC	397.8	44.4	50.0	46.5	82.4	621.1
JAN	397.8	44.4	50.0	46.5	82.4	621.1
FEB	397.8	44.4	50.0	46.5	82.4	621.1
MAR	397.8	44.4	50.0	46.5	82.4	621.1
APR	397.8	44.4	50.0	46.5	82.4	621.1
MAY	397.8	44.4	50.0	46.5	82.4	621.1
JUN	397.8	44.4	50.0	46.5	82.4	621.1
JUL	397.8	44.4	50.0	46.5	82.4	621.1
AUG	397.8	44.4	50.0	46.5	82.4	621.1
TOTAL	4,773.8	532.4	600.3	557.7	988.5	7,452.7

Source: Application of the projected national rural population to
the appropriate annual per capita consumption rates;
distributed uniformly throughout the year. Current
annual per capita rates are 188.3 pounds of corn, 21
pounds of beans, 11.8 points of milled rice, 22 pounds of
sorghum and 37.51 pounds of wheat. Milled rice converted
to equivalent weight of rough rice on basis of the
coefficient of 1.9385.

TABLE 13C. Projected Monthly Volume of Grains for Human Consumption
(1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	442.1	67.3	130.8	45.9	136.7	822.8
OCT	442.1	67.3	130.8	45.9	136.7	822.8
NOV	442.1	67.3	130.8	45.9	136.7	822.8
DEC	442.1	67.3	130.8	45.9	136.7	822.8
JAN	442.1	67.3	130.8	45.9	136.7	822.8
FEB	442.1	67.3	130.8	45.9	136.7	822.8
MAR	442.1	67.3	130.8	45.9	136.7	822.8
APR	442.1	67.3	130.8	45.9	136.7	822.8
MAY	442.1	67.3	130.8	45.9	136.7	822.8
JUN	442.1	67.3	130.8	45.9	136.7	822.8
JUL	442.1	67.3	130.8	45.9	136.7	822.8
AUG	442.1	67.3	130.8	45.9	136.7	822.8
TOTAL	5,385.7	807.9	1,569.6	550.7	1,640.1	9,874.0

Source: Urban consumption (Table 13A) + Rural consumption
(Table 13B).

TABLE 14. Simulated Monthly Volume of Grain for Human Consumption
without Government Intervention.
(1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	385.3	63.4	120.0	45.9		534.7
OCT	511.9	77.9	124.4	45.9		760.2
NOV	841.7	71.0	143.2	50.8		1,106.8
DEC	659.3	66.2	154.3	50.8		930.7
JAN	481.4	74.5	136.6	56.1		748.7
FEB	454.4	80.9	130.8	71.5		745.7
MAR	401.3	66.9	130.8	56.6		655.7
APR	392.0	65.8	130.8	42.5		631.2
MAY	341.3	64.2	130.8	41.2		577.4
JUN	304.3	59.2	108.2	39.8		511.5
JUL	242.5	54.0	108.2	28.2		432.8
AUG	162.8	61.9	108.2	1.1		333.9
TOTAL	5,098.4	814.0	1,526.2	530.4	0.0	7,969.0

Sources: The percentage changes in total market quantities
represented by the net government sales volumes for
human consumption under this alternative applied to
the projected total monthly volumes for human
consumption (Table 13C).

TABLE 15A. Projected Monthly Volume of Home-Produced Grain for
Human Consumption by the Farm Family (1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	117.2	3.1	0.0	3.3		123.6
OCT	117.2	3.1	0.0	3.3		123.6
NOV	117.2	3.1	0.0	3.3		123.6
DEC	117.2	3.1	0.0	3.3		123.6
JAN	117.2	3.1	0.0	3.3		123.6
FEB	117.2	3.1	0.0	3.3		123.6
MAR	117.2	3.1	0.0	3.3		123.6
APR	117.2	3.1	0.0	3.3		123.6
MAY	117.2	3.1	0.0	3.3		123.6
JUN	117.2	3.1	0.0	3.3		123.6
JUL	117.2	3.1	0.0	3.3		123.6
AUG	117.2	3.1	0.0	3.3		123.6
TOTAL	1,406.4	37.2	0.0	40.0	0.0	1,483.6

Source: Calculated by applying the projected number of farms
producing the grain by the appropriate farm family home
consumption rates. Current projections based on average
farm family of six persons and annual per capita home
consumption rates of 142.2 pounds of corn, 15.75 pounds
of beans and 16.8 pounds of sorghum. These rates
distributed uniformly from month to month.

TABLE 15B. Projected Monthly Volume of Home-Produced Grain for
Livestock Feed   (1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	37.8		1.4	3.5		42.7
OCT	56.7		3.3	3.5		63.4
NOV	132.3		2.3	3.5		138.1
DEC	151.1		2.3	24.2		177.7
JAN	24.4		0.1	55.7		80.2
FEB	48.9		0.2	55.7		104.8
MAR	36.7		0.1	55.7		92.5
APR	12.2		0.1	18.6		30.9
MAY	0.0		0.0	0.0		0.0
JUN	0.0		0.0	0.0		0.0
JUL	0.0		0.0	0.0		0.0
AUG	0.0		0.0	0.0		0.0
TOTAL	500.1		3.0	220.2		723.3

Source: Calculated by applying the annual on-farm livestock use
rates to the projected gross production for this alternative,
and making the monthly distribution proportional to work
percent for corn, 0.5 percent for rice and 21.5 percent
for sorghum.

TABLE 16. Projected Monthly Volume of Grains for Seed
(1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	4.9	2.4	5.6	3.7		16.6
OCT	9.8	7.5	0.2	3.7		21.1
NOV	7.3	7.5	0.4	3.7		18.9
DEC	2.4	6.2	0.3	1.2		18.2
JAN	0.8	3.7	0.3			4.8
FEB	0.8		0.0			0.0
MAR	0.0		0.0			0.0
APR	0.0		0.0			0.0
MAY	7.6	7.3	0.0	0.2		15.1
JUN	11.3	4.8	3.4	0.2		19.8
JUL	26.5	4.8	7.8	0.2		39.4
AUG	30.2	4.8	5.6	1.6		42.3
TOTAL	100.1	49.1	23.6	14.6	0.0	187.4

Source: Annual volume of seed demand computed by applying the
prevailing seeding rates to the total area devoted to
the crop under this alternative. Distribution to a
monthly basis proportionate to Work Table 1 with lead
time for growing seasons of 4 months for corn and rice
and 3 months for beans and sorghum. Current average
seeding rates per manzana are 25 pounds for corn, 75
pounds for beans, 127.5 pounds for rice and 22.7 pounds
for sorghum.

TABLE 17. Projected Monthly Volume of Grain Demand by Industrial
          Processors   (1,800 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	132.1			12.6		144.7
OCT	132.1			12.6		144.7
NOV	132.1			12.6		144.7
DEC	132.1			12.6		144.7
JAN	132.1			12.6		144.7
FEB	132.1			12.6		144.7
MAR	132.1			12.6		144.7
APR	132.1			12.6		144.7
MAY	132.1			12.6		144.7
JUN	132.1			12.6		144.7
JUL	132.1			12.6		144.7
AUG	132.1			12.6		144.7
TOTAL	1,585.7			150.6		1,736.3

Source: Estimated industrial demand by region for 1983/84
         (1HMA/C1ES), increased at the annual rate of 3 percent.
         Monthly volume based on uniform utilization over the year.

TABLE 18. Simulated Monthly Volume of Grain Demand by Industrial
           Processors without Government Intervention.
           (1,800 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	(4.7)			12.6		7.9
OCT	201.9			12.6		214.5
NOV	531.7			17.5		549.2
DEC	349.3			17.5		366.8
JAN	171.4			22.7		194.2
FEB	144.4			38.2		182.6
MAR	91.3			23.3		114.6
APR	82.0			9.2		91.2
MAY	31.3			7.8		39.1
JUN	(5.7)			6.5		0.8
JUL	(67.6)			(5.1)		(72.7)
AUG	(147.2)			(32.3)		(179.5)
TOTAL	1,378.4			130.3		1,508.6

Source: The percentage changes in total market quantities represented
         by the net government sales volumes for industrial use under
         this alternative applied to the projected total monthly
         volumes for industrial use (Table 17).

TABLE 19. Projected Monthly Volume of Grain for Export
(1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.0	0.0	0.0	0.0	0.0	0.0
OCT	0.0	0.0	0.0	0.0	0.0	0.0
NOV	0.0	0.0	0.0	0.0	0.0	0.0
DEC	0.0	0.0	0.0	0.0	0.0	0.0
JAN	0.0	0.0	0.0	0.0	0.0	0.0
FEB	0.0	0.0	0.0	0.0	0.0	0.0
MAR	0.0	0.0	0.0	0.0	0.0	0.0
APR	0.0	0.0	0.0	0.0	0.0	0.0
MAY	0.0	0.0	0.0	0.0	0.0	0.0
JUN	0.0	0.0	0.0	0.0	0.0	0.0
JUL	0.0	0.0	0.0	0.0	0.0	0.0
AUG	259.8	0.0	91.7	17.4	0.0	368.9
TOTAL	259.8	0.0	91.7	17.4	0.0	368.9

Source: Calculated for this alternative as residual of total volume
of supply (Table 1 + Decrease in ending inventory) minus
total volume of demand by other uses (Table 13C + Table
15A + Table 15B + Table 16 + Table 17 + Increases in ending
inventory). If the residual is minus, then the absolute
value represents imports (Table 12) and the export figure
in Table 19 is set equal to zero.

TABLE 20. Projected Monthly Volume of Grain Sales by Government
(1,000 Quintals)

	CORN	BEANS	PADDY RICE	SORGHUM	MILLED RICE	TOTAL
SEP	138.7	8.7	22.6		1.4	171.4
OCT	117.2	12.2	22.6		4.5	156.5
NOV	26.1	1.5	0.0		1.6	29.2
DEC	33.0	1.9			1.4	36.3
JAN	9.7	4.5	0.0		2.9	17.1
FEB	23.5	6.2	0.0	0.0	2.9	32.6
MAR	40.8	1.0	0.0	3.4	3.0	48.2
APR	50.1	1.9		3.4	4.5	59.9
MAY	100.9	3.1		4.7	4.5	113.3
JUN	137.9	8.1	22.6	6.1	3.0	177.7
JUL	199.7	13.3	22.6	17.7	4.5	257.8
AUG	279.4	5.4	22.6	44.8	3.0	355.3
TOTAL	1,156.9	68.0	113.1	80.0	37.2	1,455.2

Source: The government sales for this alternative were calculated
based on past government purchase and sales patterns
(1981/82 through 1983/84) and Tables 3 and 21.

TABLE 21. Projected Monthly Wholesale Prices for Government
Grain Sales   (Lempiras per Quintal)

	CORN	BEANS	PADDY RICE	SORGHUM	MILLED RICE
SEP	18.50	49.12	28.00	17.50	50.00
OCT	18.50	49.12	28.00	17.50	50.00
NOV	18.50	49.12	28.00	17.50	50.00
DEC	18.50	49.12	28.00	17.50	50.00
JAN	18.50	49.12	28.00	17.50	50.00
FEB	18.50	49.12	28.00	17.50	50.00
MAR	18.50	49.12	28.00	17.50	50.00
APR	18.50	49.12	28.00	17.50	50.00
MAY	18.50	49.12	28.00	17.50	50.00
JUN	18.50	49.12	28.00	17.50	50.00
JUL	18.50	49.12	28.00	17.50	50.00
AUG	18.50	49.12	28.00	17.50	50.00
AVERAGE	18.50	49.12	28.00	17.50	50.00

Source: The average monthly prices of government grain
sales are taken as data representing conditions
appropriate to this alternative.

TABLE 22. Projected Monthly Wholesale Market Prices for
Grains   (Lempiras per Quintal)

	CORN	BEANS	RICE	SORGHUM
SEP	18.28	38.58	54.14	20.61
OCT	14.44	43.60	53.99	20.75
NOV	13.13	47.59	53.66	21.13
DEC	13.48	43.66	54.63	18.58
JAN	15.49	43.89	52.91	16.81
FEB	16.26	44.29	52.54	16.98
MAR	17.66	44.04	53.26	15.87
APR	17.59	45.59	52.54	15.94
MAY	17.03	49.75	52.79	16.21
JUN	17.20	51.89	53.17	17.25
JUL	17.78	53.69	53.92	17.75
AUG	19.67	45.46	54.45	18.12
AVERAGE	16.50	46.00	53.50	18.00

Source: Historical seasonal price patterns prevailing from
1979 through 1984 from Work Table 22, applied to
projected annual average prices appropriate to
this alternative.

TABLE 23. Simulated Monthly Wholesale Market Prices
for Grains without Government Intervention
(Lempiras per Quintal)

	CORN	BEANS	RICE	SORGHUM
SEP	29.88	52.54	70.44	20.61
OCT	7.71	14.87	71.42	20.75
NOV	13.13	31.24	41.18	14.75
DEC	3.62	48.12	34.27	12.98
JAN	18.37	19.44	52.63	9.38
FEB	14.52	6.10	68.41	6.67
MAR	23.51	45.67	61.52	8.71
APR	24.49	52.11	64.38	19.61
MAY	26.51	64.26	64.68	28.92
JUN	27.87	81.92	76.87	23.20
JUL	38.45	93.48	77.54	27.41
AUG	35.82	66.11	77.91	18.12
AVERAGE	18.98	43.82	66.32	28.89

Source: Calculated as follows: net government sales
volume ((Table 20 - Table 3) - Total volume
of commercial demand (Table 13C + Table 17) +
(1.0 + price flexibility coefficient (Table 2))
+ Projected monthly wholesale prices (Table 22).

TABLE 24. Projected Monthly Consumer Expenditures for
Grain and Grain Products   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	9,619.7	3,891.8	8,429.7	1,125.8		22,267.0
OCT	7,600.0	3,494.2	8,406.1	1,133.6		20,633.9
NOV	6,912.4	3,814.2	8,355.9	1,154.6		20,237.0
DEC	7,835.7	3,493.5	8,587.1	1,815.4		20,117.7
JAN	8,154.4	3,517.3	8,223.1	918.5		20,829.4
FEB	8,257.2	3,549.3	8,188.4	927.5		21,214.4
MAR	9,233.7	3,529.5	8,293.8	867.3		21,984.2
APR	9,256.2	3,653.5	8,180.9	871.1		21,961.8
MAY	8,965.7	3,986.9	8,219.2	885.9		22,057.7
JUN	9,053.9	4,158.4	8,279.7	942.3		22,434.3
JUL	9,357.7	4,382.7	8,395.2	969.6		23,825.3
AUG	10,353.0	3,643.2	8,478.3	989.9		23,464.5
TOTAL	104,219.7	44,248.6	99,965.5	11,581.5		260,227.2

TABLE 25. Simulated Monthly Consumer Expenditures for Grain and Grain Products without Government Intervention (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	15,723.3	4,367.2	10,469.3	1,244.3		31,811.1
OCT	4,853.1	1,235.8	10,615.6	1,252.9		17,163.3
NOV	6,912.4	2,596.8	6,121.2	890.9		16,521.3
DEC	1,987.3	3,999.7	5,094.2	703.6		11,784.8
JAN	5,457.3	1,615.8	7,822.2	566.3		15,461.7
FEB	7,640.8	587.8	8,978.4	402.5		17,528.6
MAR	12,374.9	3,796.1	9,143.7	525.7		25,840.5
APR	12,889.9	4,338.9	9,569.3	1,184.3		27,974.3
MAY	13,953.5	5,348.6	9,614.1	1,263.3		38,171.4
JUN	14,668.9	6,808.7	11,306.7	1,400.9		34,185.3
JUL	16,828.3	7,769.7	11,584.9	1,635.5		37,838.4
AUG	18,432.3	5,494.5	11,579.6	1,094.0		36,600.4
TOTAL	130,055.0	47,862.7	111899.2	12,264.2		302,081.2

Source: Calculated from the projected consumption quantities for this alternative and simulated non-intervention retail prices as follows: (Table 13C * Table/1.0 - retail handling margin). The retail handling margins used are 0.16 for corn, 0.19 for beans, 0.12 for rice and 0.24 sorg.

TABLE 26. Projected Monthly Expenditure by Processors for Basic Grains (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	2,415.0	0.0	0.0	258.6	0.0	2,673.6
OCT	1,908.0	0.0	0.0	260.4	0.0	2,168.3
NOV	1,735.3	0.0	0.0	265.2	0.0	2,000.5
DEC	1,781.4	0.0	0.0	233.2	0.0	2,014.6
JAN	2,047.1	0.0	0.0	211.0	0.0	2,258.1
FEB	2,148.3	0.0	0.0	213.1	0.0	2,361.3
MAR	2,333.1	0.0	0.0	199.2	0.0	2,532.4
APR	2,323.8	0.0	0.0	200.1	0.0	2,523.9
MAY	2,250.8	0.0	0.0	203.5	0.0	2,454.3
JUN	2,273.0	0.0	0.0	216.4	0.0	2,489.4
JUL	2,349.2	0.0	0.0	222.7	0.0	2,571.9
AUG	2,599.1	0.0	0.0	227.4	0.0	2,826.5
TOTAL	26,164.1	0.0	0.0	2,710.8		28,874.9

Source: Calculated from the projected procurement volumes and corresponding procurement prices as follows: Procurements of government grain (Table 200 * Table 21) plus procurements in wholesale markets [(Table 17 - Table 20B) * Table 22].

TABLE 27. Simulated Monthly Expenditure by Processors for Basic
Grains without Government Intervention
(1,000 lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	3,949.1	0.0	0.0	258.6		4,207.7
OCT	1,019.0	0.0	0.0	260.4		1,279.4
NOV	1,735.3	0.0	0.0	185.2		1,920.5
DEC	478.8	0.0	0.0	162.8		641.7
JAN	1,378.0	0.0	0.0	117.7		1,487.7
FEB	1,918.2	0.0	0.0	83.6		2,001.9
MAR	3,106.7	0.0	0.0	109.3		3,215.9
APR	3,236.0	0.0	0.0	246.1		3,482.1
MAY	3,503.0	0.0	0.0	262.5		3,765.5
JUN	3,682.6	0.0	0.0	291.1		3,973.7
JUL	4,023.9	0.0	0.0	344.1		4,367.9
AUG	4,627.4	0.0	0.0	227.4		4,854.7
TOTAL	32,649.9	0.0	0.0	2,548.8		35,198.7

Source: Calculated from the projected procurement volumes and
simulated procurement prices without government
intervention as follows: Table 17 + Table 23.

TABLE 37. Simulated Monthly Impact of Government Market
Intervention on Producer Incomes from Grain Sales
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	(2,976.0)	(515.8)	(1,234.5)	0.0		(4,726.4)
OCT	3,467.0	1,046.2	(1,050.5)	0.0		3,622.8
NOV	11,254.8	616.3	724.2	47.3		12,642.6
DEC	8,551.4	(129.5)	1,621.8	170.4		10,214.2
JAN	1,219.7	1,282.6	36.2	393.6		2,932.3
FEB	673.2	2,420.5	(242.9)	855.3		3,706.0
MAR	(1,451.8)	(56.4)	(200.4)	389.0		(1,319.6)
APR	(421.0)	(299.7)	(227.8)	(107.6)		(1,056.2)
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	(931.8)	0.0	0.0		(931.8)
TOTAL	20,317.2	3,632.4	(613.9)	1,748.2		25,083.9

Source: Calculated by subtracting simulated revenues to producers
from grain sales without government intervention (Table 8)
from projected producer revenues from grain sales under this
alternative (Table 7).

TABLE 28. Projected Monthly Inventories of Government Grain Purchased in Prior Years. (1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	550.1	89.6	167.5	49.7		856.8
OCT	550.1	89.6	152.4	49.7		841.7
NOV	550.1	89.6	152.4	43.7		841.7
DEC	550.1	88.5	152.4	49.7		840.6
JAN	550.1	88.5	152.4	49.7		840.6
FEB	550.1	88.5	146.8	49.7		835.0
MAR	509.3	88.1	141.0	49.7		788.0
APR	453.2	86.6	132.3	46.3		724.3
MAY	358.3	83.5	123.6	41.6		606.9
JUN	220.4	75.4	95.2	35.5		426.4
JUL	20.7	62.1	64.0	17.8		164.5
AUG	0.0	56.7	35.6	0.0		92.3
FINAL	0.0	56.7	35.6	0.0		92.3

Source: Carry-in inventory from preceeding period minus any sales of the "old crop" grain during the month.

TABLE 29. Projected Monthly Inventories of Government Grain Purchased during Current Crop Year. (1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.0	0.0	0.0	0.0	0.0	0.0
OCT	69.8	10.6	0.0	0.0	0.0	80.4
NOV	469.4	14.3	9.3	4.9	0.0	497.9
DEC	686.6	14.3	30.1	9.8	0.0	740.8
JAN	725.9	21.5	30.3	20.0	0.0	797.7
FEB	738.2	43.1	30.3	45.6	0.0	857.2
MAR	738.2	43.1	30.3	56.3	0.0	867.9
APR	738.2	43.1	30.3	56.3	0.0	867.9
MAY	738.2	43.1	30.3	56.3	0.0	867.9
JUN	738.2	43.1	30.3	56.3	0.0	867.9
JUL	738.2	43.1	30.3	56.3	0.0	867.9
AUG	479.5	43.1	30.3	29.3	0.0	582.2
FINAL	479.5	43.1	30.3	29.3	0.0	582.2

Source: Carry-in inventory of "new crop" grain from previous month plus any purchases and minus any sales of the "new crop" grain during the month, assuming old crop inventories depleted before any new crop inventories sold.

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TABLE 30. Projected Ton-Months of Storage Volume for Old-Croo
Government Grain   (1,000 Month/Quintal)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	618.5	91.5	174.2	49.7		933.9
OCT	550.1	89.6	159.9	49.7		849.2
NOV	550.1	89.6	152.4	49.7		841.7
DEC	550.1	83.0	152.4	49.7		841.1
JAN	550.1	88.5	152.4	49.7		840.6
FEB	550.1	88.5	149.6	49.7		837.8
MAR	529.7	88.3	143.9	49.7		811.5
APR	484.3	87.3	136.6	48.0		756.1
MAY	488.8	85.0	127.9	43.9		665.6
JUN	289.4	79.4	109.4	38.5		516.6
JUL	120.6	68.7	79.6	26.6		295.5
AUG	10.4	59.4	49.8	8.9		128.4
TOTAL	5,212.0	1,004.5	1,588.0	513.5		8,318.0

Source: Calculated from the monthly inventories figures in Table
28 as follows: Ton-months storage of grain i for month
$j = ((Ii_j - 1 - Ii_j) + 0.5) + Ii_j$, where $I =$ Table 28
inventories.

TABLE 31. Projected Ton-Months of Storage Volume for New-Croo
Government Grain   (1,000 Month/Quintal)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.0	0.0	0.0	0.0		0.0
OCT	34.9	5.3	0.0	0.0		40.2
NOV	269.6	12.5	4.7	2.5		289.3
DEC	578.0	14.3	19.8	7.4		619.5
JAN	706.3	17.9	30.3	14.9		769.4
FEB	732.1	32.3	30.3	32.8		827.5
MAR	738.2	43.1	30.3	51.0		862.6
APR	738.2	43.1	30.3	56.3		867.9
MAY	738.2	43.1	30.3	56.3		867.9
JUN	738.2	43.1	30.3	56.3		867.9
JUL	738.2	43.1	30.4	56.3		868.0
AUG	608.9	43.1	30.4	42.8		725.2
TOTAL	6,620.8	340.9	267.2	376.6		7,605.5

Source: Calculated from the monthly inventory figures in Table 29
as follows: Ton-months storage of grain i for month $j =$
$((Ii_j - 1 + Ii_j) /2)$, where $I =$ Table 29 inventories.

TABLE 32. Projected Monthly Expenditure for Storing Government-Owned
          Grains   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	47.0	7.0	13.2	3.8		71.0
OCT	44.5	7.2	12.2	3.8		67.7
NOV	62.3	7.8	11.9	4.0		86.0
DEC	85.7	7.9	13.1	4.3		111.0
JAN	95.5	8.1	13.9	4.9		122.4
FEB	97.4	9.2	13.7	6.3		126.6
MAR	96.4	10.0	13.3	7.6		127.3
APR	92.9	9.9	12.7	7.9		123.4
MAY	87.2	9.7	12.0	7.6		116.5
JUN	78.1	9.3	10.6	7.2		105.2
JUL	65.3	8.5	8.4	6.3		88.5
AUG	47.1	7.8	6.1	3.9		64.9
TOTAL	899.4	102.4	141.1	67.6		1,210.5

Source: Calculated by applying the relevant costs per ton-month
         of storage (including shrinkage) to the projected storage
         volumes for this alternative from Table 30 and Table 31.

TABLE 33. Projected Monthly Expenditure for Transferring
           Government-Owned Grains (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	26.4	3.0	10.3	0.0		39.7
OCT	57.0	7.9	11.6	0.0		76.5
NOV	84.7	1.5	3.7	0.7		90.6
DEC	53.1	0.6	7.1	0.7		61.5
JAN	11.0	3.6	1.7	1.5		17.8
FEB	11.1	7.7	0.0	3.8		22.6
MAR	7.7	0.4	0.0	2.6		10.7
APR	9.4	0.5	0.0	0.5		10.4
MAY	18.9	0.7	0.0	0.7		20.3
JUN	25.9	1.8	6.8	0.9		35.4
JUL	37.4	3.0	6.8	2.7		49.9
AUG	52.4	1.2	6.8	6.7		67.1
TOTAL	395.0	31.9	54.8	20.8		502.5

Source: Calculated by applying the relevant average total per ton
         transfer cost to the projected volumes of government
         grains to be transferred under this alternative.

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TABLE 34. Projected Monthly Expenditure for Selling and Loading
Government Grains   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	42.2	2.6	6.9	0.0		51.7
OCT	35.6	3.7	6.9	0.0		46.2
NOV	7.9	0.5	0.0	0.0		8.4
DEC	10.0	0.6	0.0	0.0		10.6
JAN	2.9	1.4	0.0	0.0		4.3
FEB	7.1	1.9	0.0	0.0		9.0
MAR	12.4	0.3	0.0	1.0		13.7
APR	15.2	0.6	0.0	1.0		16.8
MAY	30.7	0.9	0.0	1.4		33.0
JUN	41.9	2.5	6.9	1.9		53.2
JUL	60.7	4.0	6.9	5.4		77.0
AUG	84.9	1.6	6.9	13.6		107.0
TOTAL	351.5	20.6	34.5	24.3		430.9

Source: Calculated by applying the projected sales volumes from
Tables 20A and 20B to the relevant average per ton costs
for selling, transferring title, and loading out
government-owned grains to private-sector buyers.

TABLE 35. Projected Monthly Revenue from Sale of Government-Owned
Grains   (1,000 Lempiras)

	CORN	BEANS	PADDY RICE	SORGHUM	MILLED RICE	TOTAL
SEP	2,566.0	427.2	632.8	0.0	70.0	3,695.9
OCT	2,168.2	599.0	632.8	0.0	225.0	3,625.0
NOV	482.9	73.7	0.0	0.0	80.0	636.5
DEC	610.5	93.3	0.0	0.0	70.0	773.8
JAN	179.5	221.0	0.0	0.0	145.0	545.4
FEB	434.8	304.4	0.0	0.0	145.0	884.2
MAR	754.8	49.1	0.0	59.5	150.0	1,013.4
APR	986.9	93.3	0.0	59.5	225.7	1,365.3
MAY	1,866.7	152.2	0.0	82.3	225.7	2,326.8
JUN	2,551.2	397.7	632.8	106.8	149.2	3,837.6
JUL	3,694.5	653.0	632.8	385.8	222.7	5,512.7
AUG	5,168.9	855.1	632.8	784.0	149.8	7,808.6
TOTAL	21,404.5	3,329.0	3,164.0	1,481.8	1,858.0	31,157.2

SOURCE: Calculated by applying the projected volumes of sales
from Table 20A and Table 20B to the projected government
sales prices from Table 21.

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TABLE 36. Projected Monthly Cash Flow from Government Grain
Operations   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	2,416.8	200.2	638.2	(3.8)		3,251.3
OCT	(1,273.7)	(439.9)	401.3	(3.8)		(1,316.1)
NOV	(7,186.9)	(169.0)	(261.7)	(88.0)		(7,705.5)
DEC	(3,962.6)	48.7	(577.0)	(88.8)		(4,579.7)
JAN	(792.5)	(315.2)	(27.2)	(178.3)		(1,313.2)
FEB	(312.8)	(961.4)	131.3	(434.6)		(1,577.4)
MAR	638.3	11.3	136.7	(180.7)		605.5
APR	805.4	81.5	213.8	50.1		1,153.9
MAY	1,729.9	148.9	213.7	72.6		2,157.8
JUN	2,485.3	304.1	757.7	96.8		3,643.8
JUL	3,531.1	637.5	833.4	295.4		5,297.3
AUG	4,984.5	254.5	762.8	759.8		6,761.6
INV	(3,194.0)	269.0	(2,726.3)	(299.9)		-5951.2
TOTAL	(207.4)	142.3	495.7	(3.3)		427.3

Source: Calculated by subtracting from the projected monthly
revenues (Table 35) the combined direct expenditure
projections for this alternative (Table 11S + Tables 32,34).
Adjusted for changes in ending inventories (INV)

TABLE 38. Simulated Monthly Impact of Government Market Intervention
on Consumer Expenditures for Food
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	5,118.6	1,275.4	2,033.6	118.5		9,544.1
OCT	(3,540.9)	(2,258.4)	2,209.5	119.3		(3,470.5)
NOV	0.0	(1,217.4)	(2,234.6)	(263.6)		(3,715.7)
DEC	(5,188.4)	500.2	(3,412.9)	(231.8)		(8,332.9)
JAN	(2,697.1)	(1,901.5)	(416.9)	(352.2)		(5,367.7)
FEB	(916.4)	(3,042.3)	798.0	(525.0)		(3,685.8)
MAR	3,081.2	266.6	849.9	(341.6)		3,856.2
APR	3,633.6	677.4	1,388.4	313.1		6,012.5
MAY	4,987.8	1,353.7	1,394.9	377.3		8,113.7
JUN	5,615.0	2,658.3	3,027.0	458.6		11,758.9
JUL	6,678.6	3,467.0	3,189.6	685.9		14,013.1
AUG	8,079.3	1,851.3	3,181.2	104.2		13,136.0
TOTAL	25,835.3	3,622.2	11,933.8	462.7		41,853.9

Source: Calculated by subtracting simulated consumer expenditures
without government intervention (Table 25) from projected
consumer expenditures for basic grains and grain products
under this alternative (Table 24).

TABLE 39. Simulated Monthly Impact of Government Market Intervention
on Processors Expenditures for Grains
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	1,534.0			0.0		1,534.0
OCT	(888.9)			0.0		(888.9)
NOV	0.0			(80.0)		(80.0)
DEC	(1,302.5)			(78.4)		(1,302.9)
JAN	(677.1)			(93.3)		(770.4)
FEB	(238.1)			(129.4)		(359.5)
MAR	773.5			(90.0)		683.6
APR	912.2			46.0		958.2
MAY	1,252.2			59.0		1,311.2
JUN	1,409.6			74.7		1,484.3
JUL	1,674.6			121.3		1,796.0
AUG	2,028.3			0.0		2,028.3
TOTAL	6,485.9			(162.0)		6,323.9

Source: Calculated by subtracting simulated processor expenditures
without government intervention (Tab 27) from projected grain
expendit. by processors under this alternative (Table 26).

TABLE 40. Simulated Total Net Monthly Impact of Government
Intervention in Domestic Grain Markets
(1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	4,668.6	759.6	805.2	118.5		6,351.8
OCT	(962.0)	(1,012.2)	1,119.0	119.3		(736.7)
NOV	11,254.0	(681.1)	(1,518.5)	(296.4)		8,846.8
DEC	2,068.5	378.7	(1,791.0)	(131.9)		598.3
JAN	(2,154.6)	(618.9)	(380.7)	(51.6)		(3,205.8)
FEB	(473.3)	(621.8)	555.0	200.8		(339.2)
MAR	2,403.0	210.2	649.5	(42.5)		3,220.2
APR	4,124.8	377.6	1,160.6	251.6		5,914.5
MAY	6,239.9	1,353.7	1,394.9	436.4		9,424.9
JUN	7,004.7	2,650.3	3,827.0	533.3		13,235.2
JUL	8,345.2	3,467.0	3,189.6	807.3		15,809.1
AUG	10,107.6	919.5	3,101.2	104.2		14,232.5
TOTAL	52,638.4	7,254.5	11,319.9	2,848.9		73,261.7

Source: Calculated by algebraic summation of the simulated
impacts on grain producers (Table 37), the simulated
impacts on final consumers (Table 38) and the simulated
impacts on grain processors (Table 39).

APPENDIX E

Selected Output, IHMA Operations for 1984-85
(Tables 3, 4, 7-12, 19-21, 24-27, 29, 32-36)

IHMA OPERATIONS FOR 1984-85

TABLE 3. Projected Monthly Volume of Government Grain Purchases.
(1000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.2	0.7	1.8			2.7
OCT	92.8	7.9	24.5	0.5		125.7
NOV	257.1	2.2	6.9	2.8		269.0
DEC	198.7	0.2	1.5	0.5		200.9
JAN	282.7	3.6	0.1	1.2		287.6
FEB	102.7	13.0		3.1		118.8
MAR	32.3	2.9	0.1	10.3		45.6
APR		1.0				1.0
MAY						
JUN						
JUL						
AUG						
TOTAL	886.5	31.5	34.9	18.4		971.3

Source: Computed for this alternative based on IHMA's purchases
and sales for 1981/82 through 1983/84 together with the
volume and price data for this alternative (Tables 2 and 4).

TABLE 4. Projected Monthly Grain Prices of Government
purchases. (Lempiras per Quintal)

	CORN	BEANS	RICE	SORGHUM
SEP	13.70	40.88	21.75	
OCT	14.92	41.68	21.46	13.35
NOV	14.82	42.79	21.58	15.11
DEC	15.44	41.67	22.26	15.75
JAN	15.65	42.63	20.80	15.27
FEB	15.98	43.58	0.00	12.16
MAR	16.22	51.83	23.80	14.64
APR				
MAY				
JUN				
JUL				
AUG				
AVERAGE	15.25	44.44	21.94	14.38

Source: Specified as initial information under the assumptions for
this alternative. Modal prices based on existing tolerance
tables and anticipated geographic delivery patterns.

TABLE 7. Projected Monthly Farm Income from Grain Sales
(1,300 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	4,787.9	1,465.3	5,051.3	49.1		11,353.6
OCT	6,386.9	1,353.8	12,823.8	50.3		19,814.8
NOV	15,418.1	1,477.1	8,528.4	61.0		25,484.6
DEC	18,184.7	581.7	8,658.2	784.3		28,208.8
JAN	3,474.5	2,455.3	262.1	2,135.8		8,327.7
FEB	6,516.1	2,848.7	623.6	2,259.4		12,238.7
MAR	4,516.3	2,233.0	449.3	1,908.3		9,106.9
APR	649.8	1,328.0	443.2	643.5		3,056.5
MAY	(1,285.7)	(377.8)	0.0	(41.3)		(1,704.7)
JUN	(1,388.3)	(284.8)	(68.2)	(44.3)		(1,785.3)
JUL	(1,729.0)	(292.5)	(157.1)	(45.8)		(2,203.7)
AUG	(1,743.6)	2,501.8	(115.5)	(62.6)		580.2
TOTAL	53,807.7	15,281.7	35,699.0	7,689.8		112,478.1

Source: Calculated by means of multiplication of prices and quantities
as follows: Sales to government (Table 3 * Table 4) + sales
to private sector ((Table 2 - Table 3) * Table5).

TABLE 8. Simulated Monthly Farm Income from Grain Sales without
Government Intervention (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	5,527.1	2,543.2	5,405.0	49.1		13,524.4
OCT	5,253.9	2,313.8	10,564.6	42.6		18,171.8
NOV	7,264.1	1,649.3	8,268.6	27.0		17,209.0
DEC	10,534.7	1,848.8	6,646.1	766.6		20,598.3
JAN	458.7	3,923.2	379.4	2,089.1		6,842.4
FEB	2,983.4	1,803.0	830.9	2,519.8		7,337.0
MAR	7,551.8	1,972.3	669.9	1,862.8		12,056.8
APR	1,867.6	1,352.0	443.2	662.7		3,525.4
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	2,980.5	0.0	0.0		2,980.5
TOTAL	40,629.4	18,778.1	35,207.6	8,019.7		102,534.7

Source: Calculated by means of multiplication of simulated prices
and quantities, e.g., (Table 6 * Table 2).

TABLE 9. Projection of Monthly Cost of Government Grain Purchases. (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	2.7	28.6	39.2	0.0		70.5
OCT	1,384.6	329.3	525.8	6.7		2,246.3
NOV	3,818.2	94.1	148.9	42.3		4,095.6
DEC	3,067.9	8.3	33.4	7.9		3,117.5
JAN	3,172.3	153.5	2.1	18.3		3,346.1
FEB	1,641.1	644.5	0.0	37.7		2,323.4
MAR	523.9	150.3	2.4	150.8		827.4
APR	0.0	0.0	0.0	0.0		0.0
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	13,602.8	1,408.7	751.7	263.7		16,026.8

Source: Calculated by means of multiplication of prices and quantities, e.g., (Table 4 * Table 3).

TABLE 10. Projection of Monthly Expense for Conditioning Government Grain (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	3.7	8.2	30.6	0.0		42.5
OCT	366.3	39.2	42.0	8.4		455.9
NOV	833.9	8.9	32.1	7.8		882.7
DEC	450.1	1.4	60.9	7.8		560.2
JAN	96.0	20.1	15.0	16.2		147.3
FEB	70.1	47.8	0.0	40.6		158.5
MAR	552.6	1.0	1.8	22.4		577.8
APR	0.0	0.0	0.0	0.0		0.7
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	2,412.7	127.3	182.4	103.2		2,825.6

Source: Calculated by means of multiplication of unit direct costs for cleaning, drying and conditioning (including loss of weight) by projected quantities purchased under this alternative (Table 3).

TABLE 11. Projection of Monthly Expense of Procuring and Receiving
          Government Grain   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.6	1.5	3.6	0.0		5.7
OCT	56.8	6.9	4.9	4.9		73.5
NOV	129.4	1.6	3.8	1.5		136.3
DEC	76.1	0.2	7.1	1.5		84.9
JAN	14.9	3.6	1.8	3.1		23.4
FEB	10.9	8.5	0.0	7.8		27.2
MAR	318.2	0.2	1.0	4.3		323.6
APR	0.0	0.1	0.0	0.0		0.1
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	606.9	22.6	22.2	23.1		674.8

Source: Calculated by means of multiplication of unit direct
         costs for buying and receiving government grain into
         storage by projected quantities purchased under this
         alternative (Table 3).

SUMMARY TABLE 11S. Monthly Cost of Sales of Government-Owned
                    Grain   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	7.0	38.3	73.4	0.0		118.7
OCT	1,807.7	375.4	572.7	20.0		2,775.7
NOV	4,773.5	104.6	184.8	51.6		5,114.6
DEC	3,634.1	9.9	101.4	17.2		3,762.6
JAN	3,283.2	177.2	18.9	37.6		3,516.8
FEB	1,722.1	700.8	0.0	86.1		2,509.1
MAR	1,394.7	151.5	5.2	177.5		1,728.8
APR	0.0	0.8	0.0	0.0		0.8
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	16,622.3	1,558.6	956.3	398.0		19,527.1

Source: Calculated by direct addition of Table 9 + Table10 +
         Table 11 for this alternative.

TABLE 12. Projected Monthly Volume of Grain Imports
(1,000 quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.2	0.0	0.0	0.0	313.4	313.6
OCT	0.0	0.0	0.4	0.0	287.6	288.0
NOV	0.4	0.0	0.0	0.0	249.2	250.0
DEC	0.0	37.1	0.0	0.0	178.0	215.1
JAN	0.0	0.0	0.0	0.0	92.7	92.7
FEB	0.0	0.0	0.0	0.0	89.4	89.4
MAR	0.0	0.0	0.0	0.0	75.4	75.4
APR	0.0	7.6	0.0	0.0	183.2	190.8
MAY	0.0	74.6	0.0	0.0	87.2	161.8
JUN	0.0	72.2	0.0	0.0	181.9	254.1
JUL	0.0	72.2	0.0	0.0	187.6	179.9
AUG	0.0	0.0	0.0	0.0	118.5	118.5
TOTAL	0.6	263.6	0.4	0.4	1,964.3	2,229.3

Source: Calculated for this alternative as residual of total volume
of demand (table 13C + Table 15A + Table 15B + Table 16 +
Table 17 + Increases in ending inventory) minus total volume
of supply from other sources (Table 1 + Decreases in ending
inventory). If the residual is minus, then the absolute
value represents exports (Table 19), and the import figure
in Table 12 is set equal to zero.

TABLE 19. Projected Monthly Volume of Grain for Export
(1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.0	9.4	0.0	0.0	0.0	9.4
OCT	68.0	27.1	0.0	0.0	0.0	95.1
NOV	3.1	2.4	0.0	0.0	0.0	5.5
DEC	8.9	7.1	0.0	0.0	0.0	8.0
JAN	0.0	14.4	0.0	0.0	0.0	14.4
FEB	0.0	0.0	0.0	10.3	0.0	10.3
MAR	237.4	0.0	0.0	10.3	0.0	247.7
APR	220.3	0.0	0.0	24.7	0.0	245.0
MAY	0.0	0.0	0.0	4.5	0.0	4.5
JUN	0.0	0.0	0.0	0.0	0.0	0.0
JUL	0.0	0.0	0.0	0.0	0.0	0.0
AUG	259.8	0.0	91.7	17.4	0.0	368.9
TOTAL	789.5	60.4	91.7	67.2	0.0	1,008.5

Source: Calculated for this alternative as residual of total volume
of supply (Table 1 + Decrease in ending inventory) minus
total volume of demand by other uses (Table 13C + Table
15A + Table 15B + Table 16 + Table 17 + Increases in ending
inventory). If the residual is minus, then the absolute
value represents imports (Table 12) and the export figure
in Table 19 is set equal to zero.

TABLE 20. Projected Monthly Volume of Grain Sales by Government (1,000 Quintals)

	CORN	BEANS	PADDY RICE	SORGHUM	MILLED RICE	TOTAL
SEP	18.3	13.1	4.5		1.1	37.0
OCT	76.9	27.8	1.9		1.6	108.2
NOV	9.0	3.5	1.3		1.1	14.9
DEC	6.1	7.7			0.7	14.5
JAN	17.8	16.1	0.3		1.6	35.8
FEB	5.0	1.4	0.4	10.3	1.7	18.8
MAR	258.8	1.8	4.8	10.3	1.5	277.2
APR	49.7	1.0		0.6	8.6	59.9
MAY	100.1	1.6		0.8	8.6	111.1
JUN	136.9	4.1	77.4	1.0	5.7	225.1
JUL	198.2	6.7	77.4	2.9	8.6	293.8
AUG	277.3	2.7	77.4	7.4	5.7	370.5
TOTAL	1,154.1	87.5	245.4	33.3	46.5	1,566.8

Source: The government sales for this alternative were calculated based on past government purchase and sales patterns (1981/82 through 1983/84) and Tables 3 and 21.

TABLE 21. Projected Monthly Wholesale Prices for Government Grain Sales (Lempiras per Quintal)

	CORN	BEANS	PADDY RICE	SORGHUM	MILLED RICE
SEP	19.33	48.58	26.29	18.80	55.86
OCT	18.98	48.38	26.00	18.80	55.06
NOV	18.93	48.75	25.75	18.00	55.55
DEC	19.12	51.09	0.00	18.00	55.04
JAN	20.01	49.59	26.01	18.00	55.50
FEB	19.60	50.09	26.00	12.00	55.52
MAR	16.99	50.50	26.01	12.00	55.52
APR	18.50	49.12	28.00	17.50	50.00
MAY	18.50	49.12	28.00	17.50	50.00
JUN	18.50	49.12	28.00	17.50	50.00
JUL	18.50	49.12	28.00	17.50	50.00
AUG	18.50	49.12	28.00	17.50	50.00
AVERAGE	18.78	48.71	26.91	16.50	53.11

Source: The average monthly prices of government grain sales are taken as data representing conditions appropriate to this alternative.

TABLE 24. Projected Monthly Consumer Expenditures for Grain and Grain Products (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	9,619.7	3,091.8	8,429.7	1,125.8		22,267.0
OCT	7,600.8	3,494.2	8,486.1	1,133.6		20,633.9
NOV	6,912.4	3,814.2	8,355.9	1,154.6		20,237.0
DEC	7,895.7	3,499.5	8,597.1	1,815.4		20,117.7
JAN	8,154.4	3,517.3	8,239.1	918.5		20,829.4
FEB	8,557.2	3,549.3	8,188.4	927.5		21,214.4
MAR	9,293.7	3,529.5	8,293.8	867.3		21,984.2
APR	9,256.2	3,653.5	8,180.9	871.1		21,961.8
MAY	8,965.7	3,986.9	8,219.2	885.9		22,057.7
JUN	9,053.9	4,158.4	8,279.7	942.3		22,434.3
JUL	9,357.7	4,382.7	8,395.2	963.6		23,025.3
AUG	10,353.0	3,643.2	8,478.3	989.9		23,464.5
TOTAL	104,219.7	44,240.6	99,965.5	11,801.5		260,227.2

Source: Calculated from the projected consumption quantities and retail prices under this alternative as follows: Table 13C + (Table 22/1.0 - retail handling margin). The retail handling margins used are 0.16 for corn, 0.19 for beans, 0.12 for rice and 0.24 for sorghum.

TABLE 25. Simulated Monthly Consumer Expenditures for Grain and Grain Products without Government Intervention (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	11,135.7	5,482.4	9,885.1	1,244.3		26,947.5
OCT	6,547.9	6,783.8	5,891.5	1,218.3		19,552.4
NOV	1,736.2	4,432.8	7,224.1	1,331.5		14,434.6
DEC	2,093.3	5,650.6	8,088.1	1,881.9		16,928.9
JAN	2,895.7	6,257.9	8,556.8	931.8		18,256.2
FEB	3,547.3	1,178.4	8,577.9	1,412.5		15,188.0
MAR	16,135.9	3,285.4	3,525.9	353.6		23,585.8
APR	12,351.3	3,788.9	10,468.8	1,202.4		28,121.1
MAY	13,914.4	4,748.7	10,517.9	1,032.8		30,213.7
JUN	14,889.3	5,099.1	7,903.4	1,112.8		29,724.6
JUL	15,978.4	6,967.5	8,013.6	1,284.4		32,143.8
AUG	18,372.4	4,725.2	6,853.9	1,513.9		32,789.4
TOTAL	128,046.4	59,812.9	101155.9	13,823.8		294,839.0

Source: Calculated from the projected consumption quantities for this alternative and simulated non-intervention retail prices as follows: (Table 13C + Table/1.0 - retail handling margin). The retail handling margins used are 0.16 for corn, 0.19 for beans, 0.12 for rice and 0.24 for sorg.

TABLE 26. Projected Monthly Expenditure by Processors for
Basic Grains   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	2,415.3	0.0	0.0	258.6	0.0	2,673.6
OCT	1,906.0	0.0	0.0	260.4	0.0	2,168.3
NOV	1,725.3	0.0	0.0	255.2	0.0	2,008.5
DEC	1,781.4	0.0	0.0	233.2	0.0	2,014.6
JAN	2,047.1	0.0	0.0	211.0	0.0	2,258.1
FEB	2,148.3	0.0	0.0	213.1	0.0	2,361.3
MAR	2,333.1	0.0	0.0	199.2	0.0	2,532.4
APR	2,323.8	0.0	0.0	200.1	0.0	2,523.9
MAY	2,250.8	0.0	0.0	203.5	0.0	2,454.3
JUN	2,273.0	0.0	0.0	216.4	0.0	2,489.4
JUL	2,349.2	0.0	0.0	222.7	0.0	2,571.9
AUG	2,599.1	0.0	0.0	227.4	0.0	2,826.5
TOTAL	26,164.1	0.0	0.0	2,710.8		28,874.9

Source: Calculated from the projected procurement volumes and
corresponding procurement prices as follows: Procurements
of government grain (Table 20B + Table 21) plus procurements
in wholesale markets [(Table 17 - Table 20A) + Table 22].

TABLE 27. Simulated Monthly Expenditure by Processors for Basic
Grains without Government Intervention
(1,000 lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	2,795.6	0.0	0.0	258.6		3,054.2
OCT	1,643.8	0.0	0.0	251.5		1,895.3
NOV	435.9	0.0	0.0	214.4		650.2
DEC	526.8	0.0	0.0	225.3		752.0
JAN	638.1	0.0	0.0	193.7		823.7
FEB	990.9	0.0	0.0	293.5		1,284.5
MAR	4,050.9	0.0	0.0	199.2		4,250.1
APR	3,228.7	0.0	0.0	208.3		3,437.0
MAY	3,493.2	0.0	0.0	214.6		3,707.8
JUN	3,717.8	0.0	0.0	231.3		3,949.1
JUL	4,011.3	0.0	0.0	266.9		4,278.2
AUG	4,612.3	0.0	0.0	315.7		4,928.0
TOTAL	30,137.3	0.0	0.0	2,872.9		33,010.2

Source: Calculated from the projected procurement volumes and
simulated procurement prices without government
intervention as follows: Table 17 + Table23.

TABLE 29. Projected Monthly Inventories of Government Grain Purchased during Current Crop Year.
(1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.0	0.0	0.0	0.0	0.0	0.0
OCT	15.9	0.0	19.5	0.5	0.0	35.9
NOV	264.0	0.0	23.0	3.3	0.0	290.3
DEC	456.6	0.0	23.1	3.8	0.0	483.5
JAN	641.5	0.0	23.1	5.0	0.0	669.6
FEB	739.2	11.6	23.1	5.0	0.0	778.9
MAR	739.2	12.7	23.1	5.0	0.0	780.0
APR	739.2	12.7	23.1	5.0	0.0	780.0
MAY	739.2	12.7	23.1	5.0	0.0	780.0
JUN	739.2	12.7	23.1	5.0	0.0	780.0
JUL	696.6	12.7	(30.9)	5.0	0.0	683.4
AUG	376.7	12.7	(173.3)	5.0	0.0	221.1
FINAL	376.7	12.7	(173.3)	5.0	0.0	221.1

Source: Carry-in inventory of "new Crop" grain from previous month plus any purchases and minus any sales of the "new crop" grain during the month, assuming old crop inventories depleted before any new crop inventories sold.

TABLE 32. Projected Monthly Expenditure for Storing Government-Owned Grains (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	47.0	7.0	13.2	3.8		71.0
OCT	44.5	7.2	12.2	3.8		67.7
NOV	52.3	7.8	11.9	4.0		86.0
DEC	85.7	7.9	13.1	4.3		111.0
JAN	95.5	8.1	13.9	4.9		122.4
FEB	97.4	9.2	13.7	6.3		126.6
MAR	96.4	10.0	13.3	7.6		127.3
APR	92.9	9.9	12.7	7.9		123.4
MAY	87.2	9.7	12.0	7.6		116.5
JUN	78.1	9.3	10.6	7.2		105.2
JUL	65.3	8.5	8.4	6.3		88.5
AUG	47.1	7.8	6.1	3.9		64.9
TOTAL	899.4	102.4	141.1	67.6		1,210.5

Source: Calculated by applying the relevant costs per ton-month of storage (including shrinkage) to the projected storage volumes for this alternative from Table 30 and Table 31.

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TABLE 33. Projected Monthly Expenditure for Transferring
           Government-Owned Grains   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	26.4	3.0	10.3	0.0		39.7
OCT	57.0	7.9	11.6	0.2		76.7
NOV	84.7	1.5	3.7	0.7		90.6
DEC	53.1	0.6	7.1	0.7		61.5
JAN	11.0	3.6	1.7	1.5		17.8
FEB	11.1	7.7	0.1	3.8		22.7
MAR	7.7	0.4	1.4	2.6		12.1
APR	9.4	0.5	0.0	0.5		10.4
MAY	18.9	0.7	0.0	0.7		20.3
JUN	25.9	1.8	6.8	0.9		35.4
JUL	37.4	3.0	6.8	2.7		49.9
AUG	52.4	1.2	6.8	6.7		67.1
TOTAL	395.0	31.9	56.3	21.0		504.2

Source: Calculated by applying the relevant average total per ton
         transfer cost to the projected volumes of government
         grains to be transferred under this alternative.

TABLE 34. Projected Monthly Expenditure for Selling and Loading
           Government Grains   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	42.2	2.6	6.9	0.0		51.7
OCT	35.6	3.7	6.9	0.0		46.2
NOV	7.9	0.5	0.6	0.0		9.0
DEC	10.0	0.6	0.0	0.0		10.6
JAN	2.9	1.4	0.1	0.0		4.4
FEB	7.1	1.9	0.2	4.8		14.0
MAR	12.4	0.3	2.3	1.0		16.0
APR	15.2	0.6	0.0	1.0		16.8
MAY	30.7	0.9	0.0	1.4		33.0
JUN	41.9	2.5	6.9	1.9		53.2
JUL	60.7	4.0	6.9	5.4		77.0
AUG	84.9	1.6	6.9	13.6		107.0
TOTAL	351.5	20.6	37.7	29.1		438.9

Source: Calculated by applying the projected sales volumes from
         Tables 20A and 20B to the relevant average per ton costs
         for selling, transferring title, and loading out
         government-owned grains to private-sector buyers.

TABLE 35. Projected Monthly Revenue from Sale of Government-Owned
Grains   (1,000 Lempiras)

	CORN	BEANS	PADDY RICE	SORGHUM	MILLED RICE	TOTAL
SEP	353.7	636.4	118.3	0.0	60.6	1,169.0
OCT	1,459.6	1,345.0	49.4	0.0	88.1	2,942.0
NOV	170.4	142.6	33.5	0.0	61.1	407.6
DEC	116.6	393.4	0.0	0.0	38.5	548.6
JAN	356.2	798.4	7.8	0.0	89.0	1,251.3
FEB	98.0	70.1	10.4	123.6	94.4	396.5
MAR	4,397.0	90.9	124.8	123.6	83.3	4,819.6
APR	919.5	49.1	0.0	10.5	430.0	1,409.1
MAY	1,851.9	78.6	0.0	14.0	430.0	2,374.4
JUN	2,532.7	201.4	2,167.2	17.5	285.0	5,203.7
JUL	3,666.7	329.1	2,167.2	50.0	430.0	6,643.8
AUG	5,130.1	132.6	2,167.2	129.5	285.0	7,844.4
TOTAL	21,052.2	4,267.6	6,845.8	469.5	2,374.9	35,010.0

SOURCE: Calculated by applying the projected volumes of sales
from Table 20A and Table 20B to the projected government
sales prices from Table 21.

TABLE 36. Projected Monthly Cash Flow from Government Grain
Operations   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	231.1	585.5	75.1	(3.8)		887.9
OCT	(485.2)	950.8	(465.9)	(24.0)		(24.2)
NOV	(4,758.1)	28.2	(106.4)	(56.3)		(4,892.6)
DEC	(3,666.3)	374.4	(83.1)	(22.2)		(3,397.2)
JAN	(3,836.4)	688.1	62.1	(44.8)		(2,410.1)
FEB	(1,739.7)	(649.5)	90.8	22.6		(2,275.9)
MAR	2,885.8	(71.2)	186.0	(65.1)		2,935.4
APR	802.0	37.3	417.3	1.1		1,257.7
MAY	1,715.1	67.3	418.0	4.3		2,204.6
JUN	2,386.8	187.8	2,427.9	7.5		5,009.9
JUL	3,503.3	313.6	2,575.1	36.4		6,428.4
AUG	4,945.7	122.0	2,432.4	185.3		7,685.4
INV	(4,738.5)(2,488.6)		(7,773.5)	(214.3)		-15206.9
TOTAL	(1,946.6)	65.5	255.8	(252.5)		(1,877.7)

Source: Calculated by subtracting from the projected monthly
revenues (Table 35) the combined direct expenditure
projections for this alternative (Table 11S + Tables 32..34).
Adjusted for changes in ending inventories (INV)

APPENDIX F

Selected Output, Alternative One
(Tables 4, 9-11S, 29, 32-36)

ALTERNATIVE ONE

TABLE 4. Projected Monthly Grain Prices of Government
          purchases.   (Lempiras per Quintal)

	CORN	BEANS	RICE	SORGHUM
SEP	13.87	36.25	0.00	
OCT	13.87	36.31	23.39	0.00
NOV	13.86	36.33	23.40	12.83
DEC	13.88	36.03	23.78	12.92
JAN	13.81	36.27	24.10	12.71
FEB	13.86	36.40	23.66	12.48
MAR	0.00	36.76	0.00	12.19
APR				
MAY				
JUN				
JUL				
AUG				
AVERAGE	13.85	36.33	23.78	12.62

Source: Specified as initial information under the assumptions for
        this alternative. Modal prices based on existing tolerance
        tables and anticipated geographic delivery patterns.

TABLE 9. Projection of Monthly Cost of Government Grain Purchases.
                                      (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	2.8	25.4	0.0	0.0		28.1
OCT	1,287.1	286.8	573.1	0.0		2,147.0
NOV	3,563.4	79.9	161.5	35.9		3,840.7
DEC	2,758.0	7.2	35.7	6.5		2,807.3
JAN	2,799.3	130.6	2.4	15.3		2,947.5
FEB	1,423.4	473.2	0.0	38.7		1,935.3
MAR	0.0	106.6	0.0	125.6		232.2
APR	0.0	0.0	0.0	0.0		0.0
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	11,834.0	1,189.7	772.6	221.9		13,938.2

Source: Calculated by means of multiplication of prices and
        quantities, e.g., (Table 4 * Table 3).

TABLE 10. Projection of Monthly Expense for Conditioning
Government Grain   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	3.7	8.2	30.6	0.0		42.5
OCT	366.3	39.2	42.0	7.5		455.0
NOV	833.9	8.9	32.1	7.8		882.7
DEC	490.1	1.4	60.9	7.8		560.2
JAN	96.0	20.1	15.0	16.2		147.3
FEB	70.1	47.8	0.0	40.6		158.5
MAR	464.5	1.0	1.5	22.4		509.4
APR	0.0	0.7	0.0	0.0		0.7
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	2,344.6	127.3	182.1	102.3		2,756.3

Source: Calculated by means of multiplication of unit direct
costs for cleaning, drying and conditioning (including
loss of weight) by projected quantities purchased under
this alternative (Table 3).

TABLE 11. Projection of Monthly Expense of Procuring and Receiving
Government Grain   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.6	1.5	3.6	0.0		5.7
OCT	56.8	6.9	4.9	4.9		73.5
NOV	129.4	1.6	3.8	1.5		136.3
DEC	76.1	0.2	7.1	1.5		84.9
JAN	14.9	3.6	1.8	3.1		23.4
FEB	10.9	8.5	0.0	7.8		27.2
MAR	318.2	0.2	1.0	4.3		323.6
APR	0.0	0.1	0.0	0.0		0.1
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	606.9	22.6	22.2	23.1		674.8

Source: Calculated by means of multiplication of unit direct
costs for buying and receiving government grain into
storage by projected quantities purchased under this
alternative (Table 3).

SUMMARY TABLE 11S. Monthly Cost of Sales of Government-Owned
                    Grain   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	7.1	35.1	34.2	0.0		76.3
OCT	1,710.2	332.9	620.0	12.4		2,675.6
NOV	4,526.7	98.4	197.4	45.2		4,859.7
DEC	3,384.2	8.8	102.7	15.8		3,452.4
JAN	2,910.2	154.3	19.2	34.6		3,118.2
FEB	1,504.4	529.5	0.0	87.1		2,121.0
MAR	802.7	107.8	2.5	152.3		1,065.2
APR	0.0	0.0	0.0	0.0		0.0
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	14,785.4	1,259.6	976.9	347.3		17,369.3

Source: Calculated by direct addition of Table 9 + Table10 +
        Table 11 for this alternative.

TABLE 29. Projected Monthly Inventories of Government Grain
           Purchased during Current Crop Year.
           (1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.0	0.0	0.0	0.0	0.0	0.0
OCT	0.0	0.0	0.0	0.5	0.0	0.5
NOV	231.0	0.7	3.8	3.3	0.0	238.8
DEC	396.7	0.7	3.8	3.8	0.0	405.0
JAN	589.7	0.7	3.8	5.0	0.0	599.2
FEB	668.9	7.5	3.8	8.1	0.0	688.3
MAR	668.9	9.4	3.8	15.0	0.0	697.1
APR	668.9	9.4	3.8	15.0	0.0	697.1
MAY	668.9	9.4	3.8	15.0	0.0	697.1
JUN	668.9	9.4	3.8	15.0	0.0	697.1
JUL	668.9	9.4	3.8	15.0	0.0	697.1
AUG	416.4	9.4	3.8	(12.0)	0.0	417.6
FINAL	416.4	9.4	3.8	(12.0)	0.0	417.6

Source: Carry-in inventory of "new Crop" grain from previous
        month plus any purchases and minus any sales of the
        "new crop" grain during the month, assuming old crop
        inventories depleted before any new crop inventories
        sold.

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TABLE 32. Projected Monthly Expenditure for Storing Government-Owned
Grains   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	47.0	7.0	13.2	3.8		71.0
OCT	44.5	7.2	12.2	3.8		67.7
NOV	62.3	7.8	11.9	4.0		86.0
DEC	85.7	7.9	13.1	4.3		111.0
JAN	95.5	8.1	13.9	4.9		122.4
FEB	97.4	9.2	13.7	6.3		126.6
MAR	96.4	10.8	13.3	7.6		127.3
APR	92.9	9.9	12.7	7.9		123.4
MAY	87.2	9.7	12.0	7.6		116.5
JUN	78.1	9.3	10.6	7.2		105.2
JUL	65.3	8.5	8.4	6.3		88.5
AUG	47.1	7.8	6.1	3.9		64.9
TOTAL	899.4	102.4	141.1	67.6		1,218.5

Source: Calculated by applying the relevant costs per ton-month
of storage (including shrinkage) to the projected storage
volumes for this alternative from Table 30 and Table 31.

TABLE 33. Projected Monthly Expenditure for Transferring
Government-Owned Grains   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	26.4	3.0	10.3	0.0		39.7
OCT	57.0	7.9	11.6	0.2		76.7
NOV	84.7	1.5	3.7	0.7		90.6
DEC	53.1	0.6	7.1	0.7		61.5
JAN	11.8	3.6	1.7	1.5		17.8
FEB	11.1	7.7	0.0	3.8		22.6
MAR	7.7	0.4	.0	2.6		10.7
APR	9.4	0.5	0.0	0.5		10.4
MAY	18.9	0.7	0.0	0.7		20.3
JUN	25.9	1.8	6.8	0.9		35.4
JUL	37.4	3.0	6.8	2.7		49.9
AUG	52.4	1.2	6.8	6.7		67.1
TOTAL	395.8	31.9	54.8	21.0		502.7

Source: Calculated by applying the relevant average total per ton
transfer cost to the projected volumes of government
grains to be transfered under this alternative.

ALTERNATIVE ONE

TABLE 34. Projected Monthly Expenditure for Selling and Loading
Government Grains   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	42.2	2.6	6.9	0.0		51.7
OCT	35.6	3.7	6.9	0.0		46.2
NOV	7.9	0.5	0.0	0.0		8.4
DEC	10.0	0.6	0.0	0.0		10.6
JAN	2.9	1.4	0.0	0.0		4.3
FEB	7.1	1.9	0.0	0.0		9.0
MAR	12.4	0.3	0.0	1.0		13.7
APR	15.2	0.6	0.0	1.0		16.8
MAY	30.7	0.9	0.0	1.4		33.0
JUN	41.9	2.5	6.9	1.9		53.2
JUL	68.7	4.0	6.9	5.4		77.0
AUG	84.9	1.6	6.9	13.6		107.0
TOTAL	351.5	20.6	34.5	24.3		430.9

Source: Calculated by applying the projected sales volumes from
Tables 20A and 20B to the relevant average per ton costs
for selling, transferring title, and loading out
government-owned grains to private-sector buyers.

TABLE 36. Projected Monthly Cash Flow from Government Grain
Operations   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	2,443.3	379.5	638.2	(3.8)		3,457.2
OCT	320.9	247.3	207.1	(16.4)		758.9
NOV	(4,198.8)	(26.6)	(133.0)	(49.9)		(4,408.2)
DEC	(2,862.5)	75.4	(53.9)	(28.8)		(2,861.7)
JAN	(2,840.1)	53.6	110.2	(41.0)		(2,717.3)
FEB	(1,185.3)	(243.9)	131.3	(97.2)		(1,395.0)
MAR	(164.4)	(69.4)	134.2	(104.0)		(203.5)
APR	809.4	81.5	213.0	50.1		1,153.9
MAY	1,729.9	148.9	213.7	72.6		2,157.0
JUN	2,485.3	384.1	757.7	96.8		3,643.8
JUL	3,531.1	637.5	833.4	295.4		5,297.3
AUG	4,984.5	254.5	762.8	759.8		6,761.6
INV	(3,746.4)	(1,318.8)	(3,551.1)	(778.7)		-9395.0
TOTAL	1,226.7	955.7	263.5	162.9		2,248.8

Source: Calculated by subtracting from the projected monthly
revenues (Table 35) the combined direct expenditure
projections for this alternative (Table 11S + Tables 32..34).
Adjusted for changes in ending inventories (INV)

ALTERNATIVE ONE

TABLE 35. Projected Monthly Revenue from Sale of Government-Owned
          Grains   (1,000 Lempiras)

	CORN	BEANS	PADDY RICE	SORGHUM	MILLED RICE	TOTAL
SEP	2,566.0	427.2	632.8	0.0	70.0	3,695.9
OCT	2,166.2	599.0	632.8	0.0	225.0	3,625.0
NOV	482.9	73.7	0.0	0.0	80.0	636.5
DEC	610.5	93.3	0.0	0.0	70.0	773.8
JAN	179.5	221.0	0.0	0.0	145.0	545.4
FEB	434.8	304.4	0.0	0.0	145.0	884.2
MAR	754.8	49.1	0.0	59.5	150.0	1,013.4
APR	926.9	93.3	0.0	59.5	225.7	1,305.3
MAY	1,866.7	152.2	0.0	82.3	225.7	2,326.8
JUN	2,551.2	397.7	632.8	106.8	149.2	3,837.6
JUL	3,694.5	653.0	632.8	389.8	222.7	5,512.7
AUG	5,168.9	265.1	632.8	784.0	149.8	7,000.6

TOTAL 21,404.5 3,329.0 3,164.0 1,401.8 1,858.0 31,157.2

SOURCE: Calculated by applying the projected volumes of sales
         from Table 204 and Table 208 to the projected government
         sales prices from Table 21.

APPENDIX G

Selected Output, Alternative Two
(Tables 4, 9-11S, 29, 32-36)

ALTERNATIVE TWO

TABLE 4. Projected Monthly Grain Prices of Government
          purchases.   (Lempiras per Quintal)

	CORN	BEANS	RICE	SORGHUM
SEP	13.11	34.12		0.00
OCT	13.10	34.17	23.39	0.00
NOV	13.08	34.20	23.40	12.00
DEC	13.11	33.91	23.70	12.16
JAN	13.04	34.14	24.10	11.96
FEB	13.00	34.26	23.66	11.75
MAR	0.00	34.60	0.00	11.48
APR				
MAY				
JUN				
JUL				
AUG				
AVERAGE	13.08	34.20	23.70	11.08

Source: Specified as initial information under the assumptions for
        this alternative. Modal prices based on existing tolerance
        tables and anticipated geographic delivery patterns.

TABLE 9. Projection of Monthly Cost of Government Grain Purchases.
          (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	2.6	23.9	0.0	0.0		26.5
OCT	1,215.7	269.9	573.1	0.0		2,058.7
NOV	3,362.9	75.2	161.5	33.8		3,633.4
DEC	2,605.0	6.8	35.7	6.1		2,653.5
JAN	2,643.2	122.9	2.4	14.4		2,782.9
FEB	1,343.3	445.4	0.0	36.4		1,825.1
MAR	0.0	100.3	0.0	118.2		218.6
APR	0.0	0.0	0.0	0.0		0.0
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	11,172.7	1,044.5	772.6	208.9		13,198.6

Source: Calculated by means of multiplication of prices and
        quantities, e.g., (Table 4 ÷ Table 3).

ALTERNATIVE TWO

TABLE 10. Projection of Monthly Expense for Conditioning
Government Grain   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	3.7	8.2	30.6	0.0		42.5
OCT	366.3	39.2	42.0	7.5		455.0
NOV	833.9	8.9	32.1	7.8		882.7
DEC	490.1	1.4	60.9	7.8		560.2
JAN	96.0	20.1	15.0	16.2		147.3
FEB	70.1	47.8	0.0	40.6		158.5
MAR	484.5	1.0	1.5	22.4		509.4
APR	0.0	0.7	0.0	0.0		0.7
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	2,344.6	127.3	182.1	102.3		2,756.3

Source: Calculated by means of multiplication of unit direct
costs for cleaning, drying and conditioning (including
loss of weight) by projected quantities purchased under
this alternative (Table 3).

TABLE 11. Projection of Monthly Expense of Procuring and Receiving
Government Grain   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.6	1.5	3.6	0.0		5.7
OCT	56.8	6.9	4.9	4.9		73.5
NOV	129.4	1.6	3.8	1.5		136.3
DEC	76.1	0.2	7.1	1.5		84.9
JAN	14.9	3.6	1.8	3.1		23.4
FEB	10.9	8.5	0.0	7.8		27.2
MAR	318.2	0.2	1.0	4.3		323.6
APR	0.0	0.1	0.0	0.0		0.1
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	606.9	22.6	22.2	23.1		674.8

Source: Calculated by means of multiplication of unit direct
costs for buying and receiving government grain into
storage by projected quantities purchased under this
alternative (Table 3).

SUMMARY TABLE 11S. Monthly Cost of Sales of Government-Owned
Grain (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	6.9	33.6	34.2	0.0		74.7
OCT	1,538.8	316.0	620.0	12.4		2,587.2
NOV	4,326.2	85.7	197.4	43.1		4,652.4
DEC	3,171.2	8.4	103.7	15.4		3,298.6
JAN	2,754.1	146.6	19.2	33.7		2,953.6
FEB	1,424.3	501.7	0.0	84.8		2,010.8
MAR	882.7	101.5	2.5	144.9		1,051.6
APR	0.0	0.0	0.0	0.0		0.0
MAY	0.0	0.0	0.0	0.0		0.0
JUN	0.0	0.0	0.0	0.0		0.0
JUL	0.0	0.0	0.0	0.0		0.0
AUG	0.0	0.0	0.0	0.0		0.0
TOTAL	14,124.1	1,194.4	976.9	334.4		16,629.7

Source: Calculated by direct addition of Table 9 + Table10 +
Table 11 for this alternative.

TABLE 29. Projected Monthly Inventories of Government Grain
Purchased during Current Crop Year.
(1,000 Quintals)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	0.0	0.0	0.0	0.0	0.0	0.0
OCT	0.0	0.0	0.0	0.5	0.0	0.5
NOV	231.0	0.7	3.8	3.3	0.0	238.8
DEC	396.7	0.7	3.8	3.8	0.0	405.0
JAN	589.7	0.7	3.8	5.0	0.0	599.2
FEB	668.9	7.5	3.8	8.1	0.0	688.3
MAR	668.9	9.4	3.8	15.0	0.0	697.1
APR	668.9	9.4	3.8	15.0	0.0	697.1
MAY	668.9	9.4	3.8	15.0	0.0	697.1
JUN	668.9	9.4	3.8	15.0	0.0	697.1
JUL	668.9	9.4	3.8	15.0	0.0	697.1
AUG	416.4	9.4	3.8	(12.0)	0.0	417.6
FINAL	416.4	9.4	3.8	(12.0)	0.0	417.6

Source: Carry-in inventory of "new Crop" grain from previous
month plus any purchases and minus any sales of the
"new crop" grain during the month, assuming old crop
inventories depleted before any new crop inventories
sold.

TABLE 32. Projected Monthly Expenditure for Storing Government-Owned
Grains (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	47.0	7.0	13.2	3.8		71.0
OCT	44.5	7.2	12.2	3.8		67.7
NOV	62.3	7.8	11.9	4.0		86.0
DEC	85.7	7.9	13.1	4.3		111.0
JAN	95.5	8.1	13.9	4.9		122.4
FEB	97.4	9.2	13.7	6.3		126.6
MAR	96.4	10.0	13.3	7.6		127.3
APR	92.9	9.9	12.7	7.9		123.4
MAY	87.2	9.7	12.0	7.6		116.5
JUN	78.1	9.3	10.6	7.2		105.2
JUL	65.3	8.5	8.4	6.3		88.5
AUG	47.1	7.8	6.1	3.9		64.9
TOTAL	899.4	102.4	141.1	67.6		1,210.5

Source: Calculated by applying the relevant costs per ton-month
of storage (including shrinkage) to the projected storage
volumes for this alternative from Table 30 and Table 31.

TABLE 33. Projected Monthly Expenditure for Transferring
Government-Owned Grains (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	26.4	3.0	10.3	0.0		39.7
OCT	57.0	7.9	11.6	0.2		76.7
NOV	84.7	1.5	3.7	0.7		90.6
DEC	53.1	0.6	7.1	0.7		61.5
JAN	11.0	3.6	1.7	1.5		17.8
FEB	11.1	7.7	0.0	3.8		22.6
MAR	7.7	0.4	.0	2.6		10.7
APR	9.4	0.5	0.0	0.5		10.4
MAY	18.9	0.7	0.0	0.7		20.3
JUN	25.9	1.8	6.8	0.9		35.4
JUL	37.4	3.0	6.8	2.7		49.9
AUG	52.4	1.2	6.8	6.7		67.1
TOTAL	395.0	31.9	54.8	21.0		502.7

Source: Calculated by applying the relevant average total per ton
transfer cost to the projected volumes of government
grains to be transfered under this alternative.

ALTERNATIVE TWO

TABLE 34.   Projected Monthly Expenditure for Selling and Loading
            Government Grains   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	42.2	2.6	6.9	0.0		51.7
OCT	35.6	3.7	6.9	0.0		46.2
NOV	7.9	0.5	0.0	0.0		8.4
DEC	10.0	0.6	0.0	0.0		10.6
JAN	2.9	1.4	0.0	0.0		4.3
FEB	7.1	1.9	0.0	0.0		9.0
MAR	12.4	0.3	0.0	1.0		13.7
APR	15.2	0.6	0.0	1.0		16.8
MAY	30.7	0.9	0.0	1.4		33.0
JUN	41.9	2.5	6.9	1.9		53.2
JUL	60.7	4.0	6.9	5.4		77.0
AUG	84.9	1.6	6.9	13.6		107.0
TOTAL	351.5	20.6	34.5	24.3		430.9

Source: Calculated by applying the projected sales volumes from
         Tables 20A and 20B to the relevant average per ton costs
         for selling, transferring title, and loading out
         government-owned grains to private-sector buyers.

TABLE 35.   Projected Monthly Cash Flow from Government Grain
            Operations   (1,000 Lempiras)

	CORN	BEANS	RICE	SORGHUM	WHEAT	TOTAL
SEP	2,443.4	381.0	638.2	(3.8)		3,458.8
OCT	392.3	264.2	207.1	(16.4)		847.2
NOV	(3,998.2)	(21.9)	(133.0)	(47.8)		(4,200.9)
DEC	(2,705.5)	75.8	(53.9)	(28.4)		(2,707.9)
JAN	(2,684.1)	61.2	110.2	(48.1)		(2,552.7)
FEB	(1,185.2)	(216.1)	131.3	(94.9)		(1,284.9)
MAR	(164.4)	(63.1)	134.2	(96.6)		(190.0)
APR	809.4	81.5	213.0	50.1		1,153.9
MAY	1,729.9	140.9	213.7	72.6		2,157.0
JUN	2,485.3	384.1	757.7	96.8		3,643.8
JUL	3,531.1	637.5	833.4	295.4		5,297.3
AUG	4,984.5	254.5	762.8	755.8		6,761.6
INV	(3,538.1)	(1,241.5)	(3,551.1)	(683.6)		-9014.3
TOTAL	2,896.4	738.2	263.5	270.9		3,369.0

Source: Calculated by subtracting from the projected monthly
         revenues (Table 35) the combined direct expenditure
         projections for this alternative (Table 11S + Tables 32..34).
         Adjusted for changes in ending inventories (INV)

ALTERNATIVE TWO

TABLE 35. Projected Monthly Revenue from Sale of Government-Owned
Grains   (1,000 Lempiras)

	CORN	BEANS	PADDY RICE	SORGHUM	MILLED RICE	TOTAL
SEP	2,566.0	427.2	632.8	0.0	70.0	3,695.9
OCT	2,160.2	599.0	632.8	0.0	225.0	3,625.0
NOV	482.9	73.7	0.0	0.0	80.0	636.5
DEC	610.5	93.3	0.0	0.0	70.0	773.8
JAN	179.5	221.0	0.0	0.0	145.0	545.4
FEB	434.8	304.4	0.0	0.0	145.0	884.2
MAR	754.6	49.1	0.0	59.5	150.0	1,013.4
APR	926.9	93.3	0.0	59.5	225.7	1,305.3
MAY	1,866.7	152.2	0.0	82.3	225.7	2,326.8
JUN	2,351.2	397.7	632.8	106.8	149.2	3,637.6
JUL	3,694.5	653.0	632.8	309.8	222.7	5,512.7
AUG	5,166.9	265.1	632.8	784.0	149.8	7,000.6
TOTAL	21,404.5	3,329.0	3,164.0	1,401.8	1,858.0	31,157.2

SOURCE: Calculated by applying the projected volumes of sales
from Table 20A and Table 20B to the projected government
sales prices from Table 21.

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by

JORGE ANTONIO THIEBAUD

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MASTER OF SCIENCE

Department of Agricultural Economics

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ABSTRACT

The main objectives of this study were (1) to estimate the magnitude of Honduran Institute of Agricultural Marketing's revenues, expenses and cash flow, together with the economic impacts generated by IHMA by sector for 1984-85, under (a) IHMA's Marketing Plan and (b) purchases and sales achieved by IHMA and (2) to estimate the size of IHMA's revenues, expenses and cash flow if reasonable changes were made to the current support prices for 1984-85.

The analysis is based on research methodology developed by Kansas State University under the USAID-IHMA/KSU program in Honduras. The IHMA Simulation Model for Testing Alternative Intervention Strategies involves three categories: (1) supply, (2) demand and (3) marketing and distribution.

The findings indicate that producers seem to be benefited substantially with IHMA's intervention in the grain marketing. But consumers are even better off with this intervention, because their costs are reduced by 13 percent when simulated data is used in the model. Finally, processors appear to be benefit less from IHMA intervention. The simulated net economic impact generated by IHMA for each participant in the grain sector shows that, when the IHMA Operations for 1984-85 was run using actual information this economic impact was reduced considerably because IHMA was unable to reach the goals of its Marketing Plan for 1984-85. The economic implications for IHMA under the four alternatives show that (1) the highest gross margin for IHMA was under Alternative Two, (2) the highest net margin over direct costs was reported for simulated data under the Marketing Plan for 1984-85 and (3) IHMA's simulated annual operating loss was the highest when actual data for 1984-85 were used in the model.

The IHMA Simulation Model appears to work well even assuming the social function that IHMA has to accomplish. The results obtained from this model show that is possible for IHMA to reduce its losses and perhaps to generate small profit over direct costs, an achievement which has been unusual for IHMA since its creation.